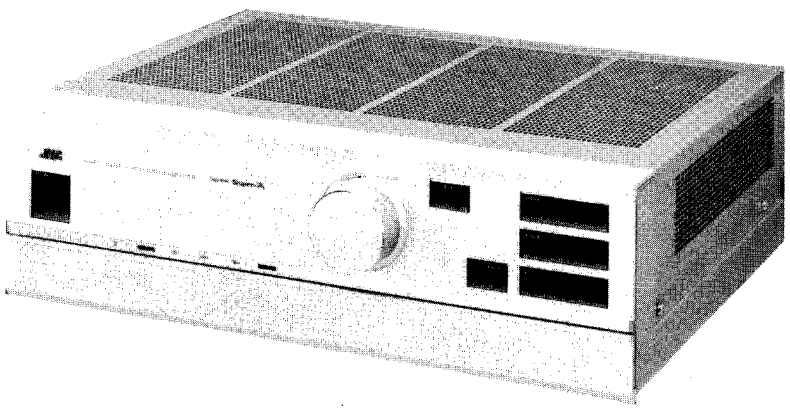
JVC

SERVICE MANUAL

MODEL
A-X77
STEREO INTEGRATED AMPLIFIER



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Warning: When replacing the parts marked with ⚠, be sure to use the designated parts to ensure safety.

1. Specifications

CIRCUITRY

Preamplifier : ICL, DC-servo MC/MM equalizer with EL-FETs in its initial stage

Power amplifier : 3-Stage differential ICL-DC "Dynamic Super-A" power amplifier with cascode-connected dual FETs and a boot-strap amp in its initial stage

ALLOVER CHARACTERISTICS

Output power (AUX IN → SP. OUT)

1 kHz : 95 watts RMS per channel min. (8 ohms, 0.0005 % total harmonic distortion measured by JVC Audio Analyze System)

: 100 watts RMS per channel min. (8 ohms, 0.7 % total harmonic distortion)

20 Hz – 20 kHz : 90 watts RMS per channel min. (both channels driven into 8 ohms from 20 Hz to 20 kHz with no more than 0.003 % total harmonic distortion.)

Total harmonic distortion

AUX IN → SP. OUT : 0.003 % (20 Hz – 20 kHz, 8 ohms) at 90 watts

PHONO IN → SP. OUT at Volume –30 dB : 0.005 % (20 Hz – 20 kHz, 8 ohms) at 90 watts

Intermodulation distortion (AUX IN → SP. OUT) : 0.001 % (60 Hz: 7 kHz = 4 : 1, 8 ohms) at 90 watts

Power band width (AUX IN→ SP. OUT) : 5 Hz – 60 kHz (IHF, 0.02 %, 8 ohms both channels driven)

Frequency characteristic : DC – 300 kHz +0, –3 dB (8 ohms)

Damping factor : 150 (1 kHz, 8 ohms)

Input terminals

Input sensitivity/impedance (1 kHz)

PHONO (MM)	: 2.5 mV/47 kohms
PHONO (MC)	: 200 μV/100 ohms
TUNER	: 200 mV/47 kohms
AUX	: 200 mV/47 kohms
TAPE	: 200 mV/47 kohms

Signal-to-noise ratio

PHONO (MM)	: 86 dB
PHONO (MC)	: 72 dB (250 μV input)
TUNER	: 110 dB
AUX	: 110 dB
TAPE	: 110 dB

(IHF A Network short circuit)

PHONO (MM)	: 83 dB (Rec out)
PHONO (MC)	: 76 dB (Rec out)
TUNER	: 84 dB (Speaker out)
AUX	: 84 dB (Speaker out)
TAPE	: 84 dB (Speaker out)

(IHF A-202)

Tone controls : TREBLE: ±8 dB (10 kHz) BASS: ±8 dB (100 Hz)

Subsonic filter : 18 Hz (–6 dB/oct)

Loudness control : 100 Hz: +6 dB, 10 kHz: +4 dB (at VOLUME –30 dB)

Muting level : –20 dB

EQUALIZER

PHONO overload capacity

PHONO (MM) : 300 mV (1 kHz, 0.0008 % THD)

PHONO (MC) : 23 mV (1 kHz, 0.001 % THD)

PHONO RIAA deviation : ±0.2 dB (20 Hz – 20 kHz)

Total harmonic distortion

PHONO (MM) : 0.002 % (at 8 V output, 20 Hz – 20 kHz)

PHONO (MC) : 0.005 % (at 8 V output, 20 Hz – 20 kHz)

Recording output

Output level/impedance

TAPE REC : 200 mV/660 ohms (PHONO)

GENERAL

Power source : See page 22

Dimensions : 5-1/2"(H) x 17-1/8"(W) x 15-7/8"(D) (14.0 cm(H) x 43.5 cm(W) x 40.2 cm(D))

Weight : 24.2 lbs. (11.0 kg)

Design and specifications subject to change without notice.

2-(2) "Dynamic Super A" Circuit Operation

1. Isolate Drive Circuit
   This circuit is basically an FET source-follower circuit. In A-X77, adequate dielectric strength is assured by the cascode connection between Q501 2SK170 (BL, V) and Q505.
   Q503 is a constant current circuit which determines the current flowing in zener diode D509 RD2.7EB2 which determines the cascode voltage of Q501 and Q505.
   Q507 is a costant current circuit which determines the current flowing in Q501.

2. Wave Correction Processor Circuit
   This circuit decreases the non-linear distortion in the power stage. It converts into a current the non-linear distortion voltage detecterd by emitters of Q515 2SC2240 (GR, BL) and Q517 2SA970 (GR, BL). This codnversion current is applied across R509 (270Ω) to the input signal in anti-phase to deny the distortion. Thus, the distortion is reduced by 20-40 dB.

3. New Super A IC
   The basic operation of this IC is the same as that of the conventional Super A IC. This new Super A IC is a monolithic IC exclusive for Dynamic Super A with further improved current linearity and faster response.,

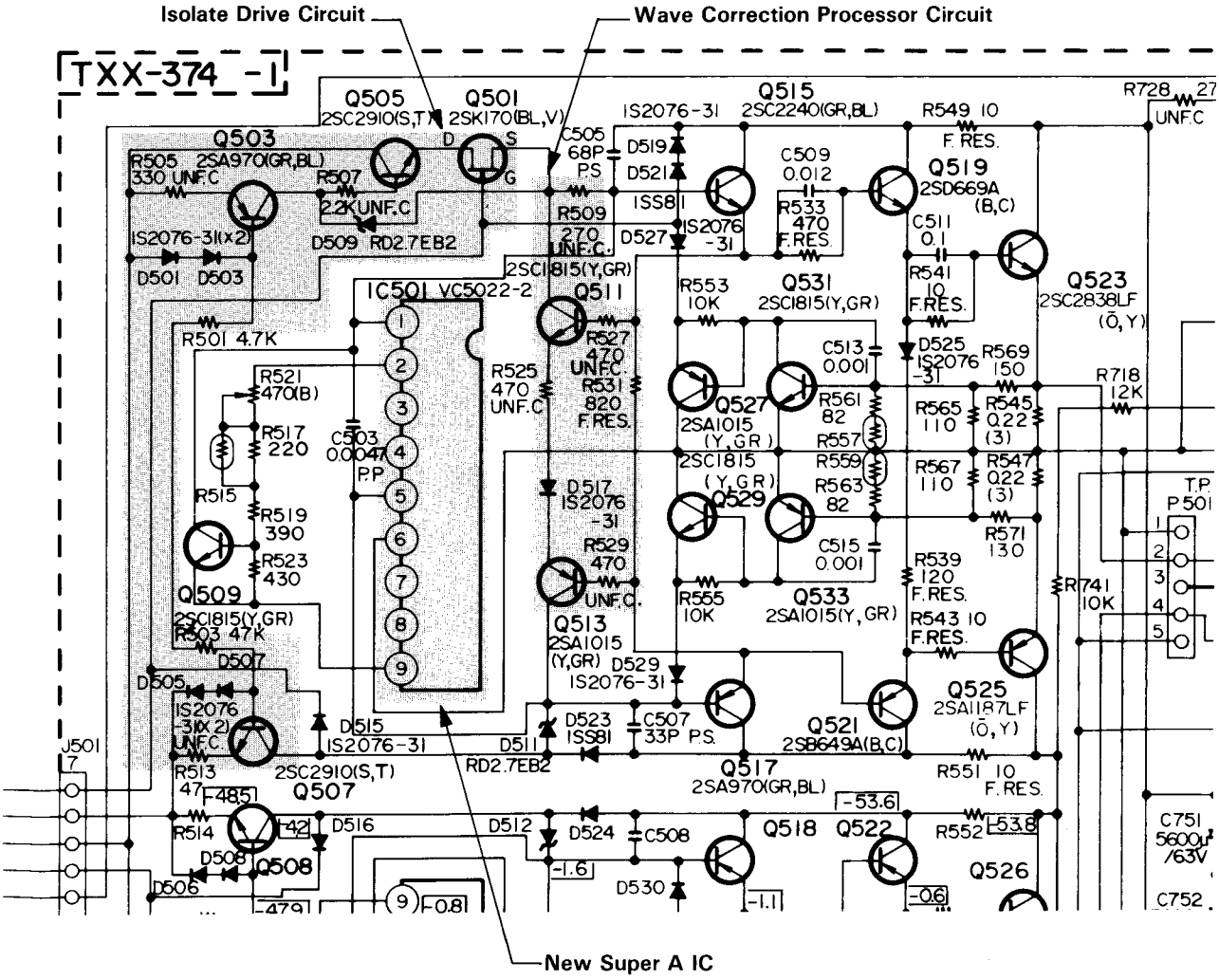


Fig. 2

2. Technical Explanation of "Dynamic Super-A"

2-(1) Basic Configuration of "Dynamic Super A" Power Amplifier

This basic configuration is as shown below.
Newly developed "isolate drive circuit" and "wave correction circuit" are added to the conventional Super A bias circuit.
In addition, newly developed IC exclusive for Dynamic Super A is employed in the Super A bias circuit.

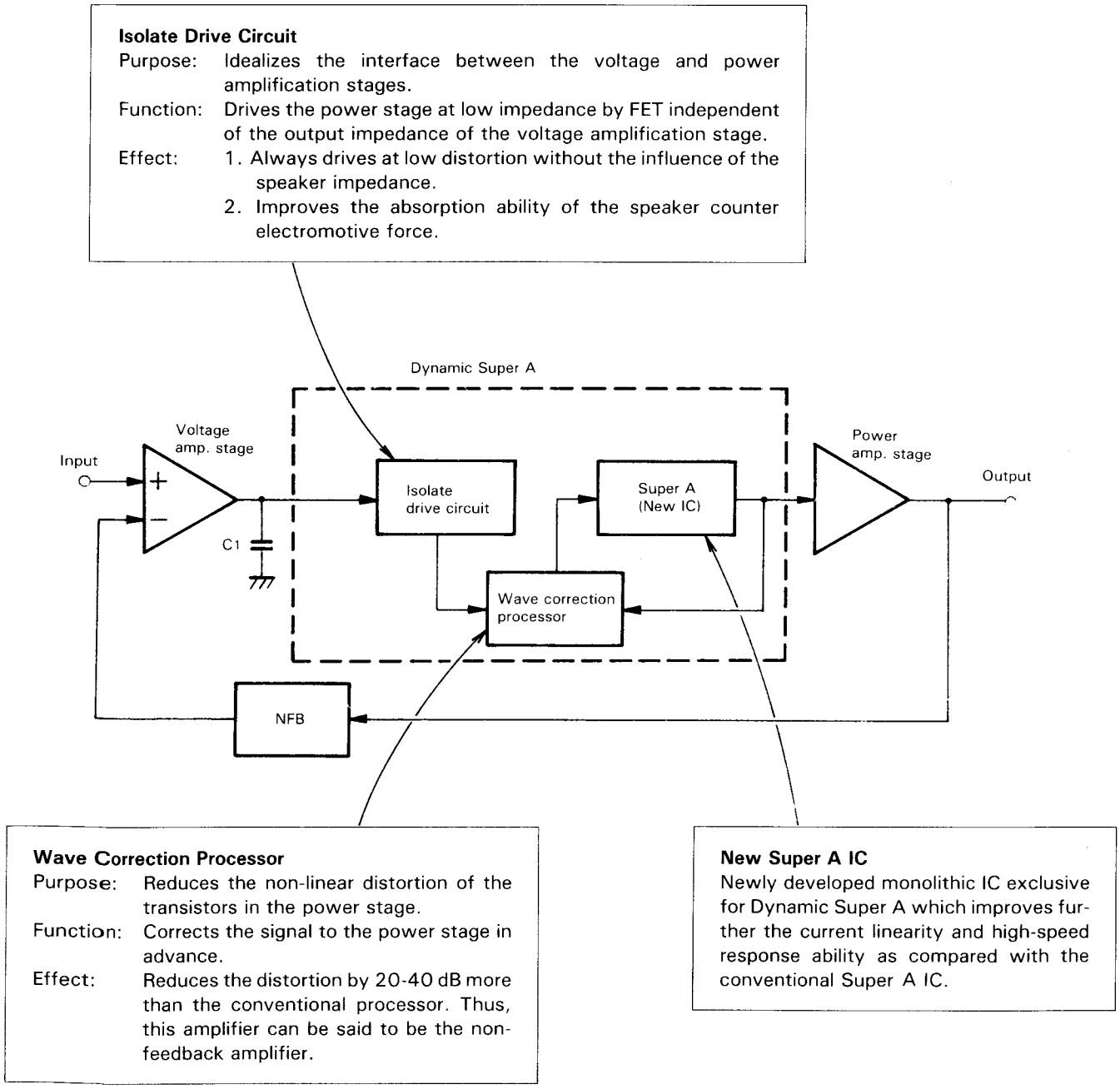

Isolate Drive Circuit
Purpose: Idealizes the interface between the voltage and power amplification stages.
Function: Drives the power stage at low impedance by FET independent of the output impedance of the voltage amplification stage.
Effect: 1. Always drives at low distortion without the influence of the speaker impedance.
2. Improves the absorption ability of the speaker counter electromotive force.
Dynamic Super A
Input
Voltage amp. stage
C1
Isolate drive circuit
Super A (New IC)
Power amp. stage
Output
Wave correction processor
NFB
Wave Correction Processor
Purpose: Reduces the non-linear distortion of the transistors in the power stage.
Function: Corrects the signal to the power stage in advance.
Effect: Reduces the distortion by 20-40 dB more than the conventional processor. Thus, this amplifier can be said to be the non-feedback amplifier.
New Super A IC
Newly developed monolithic IC exclusive for Dynamic Super A which improves further the current linearity and high-speed response ability as compared with the conventional Super A IC.

Fig. 1 Block Diagrm of Dynamic Super A

4. Block Diagram

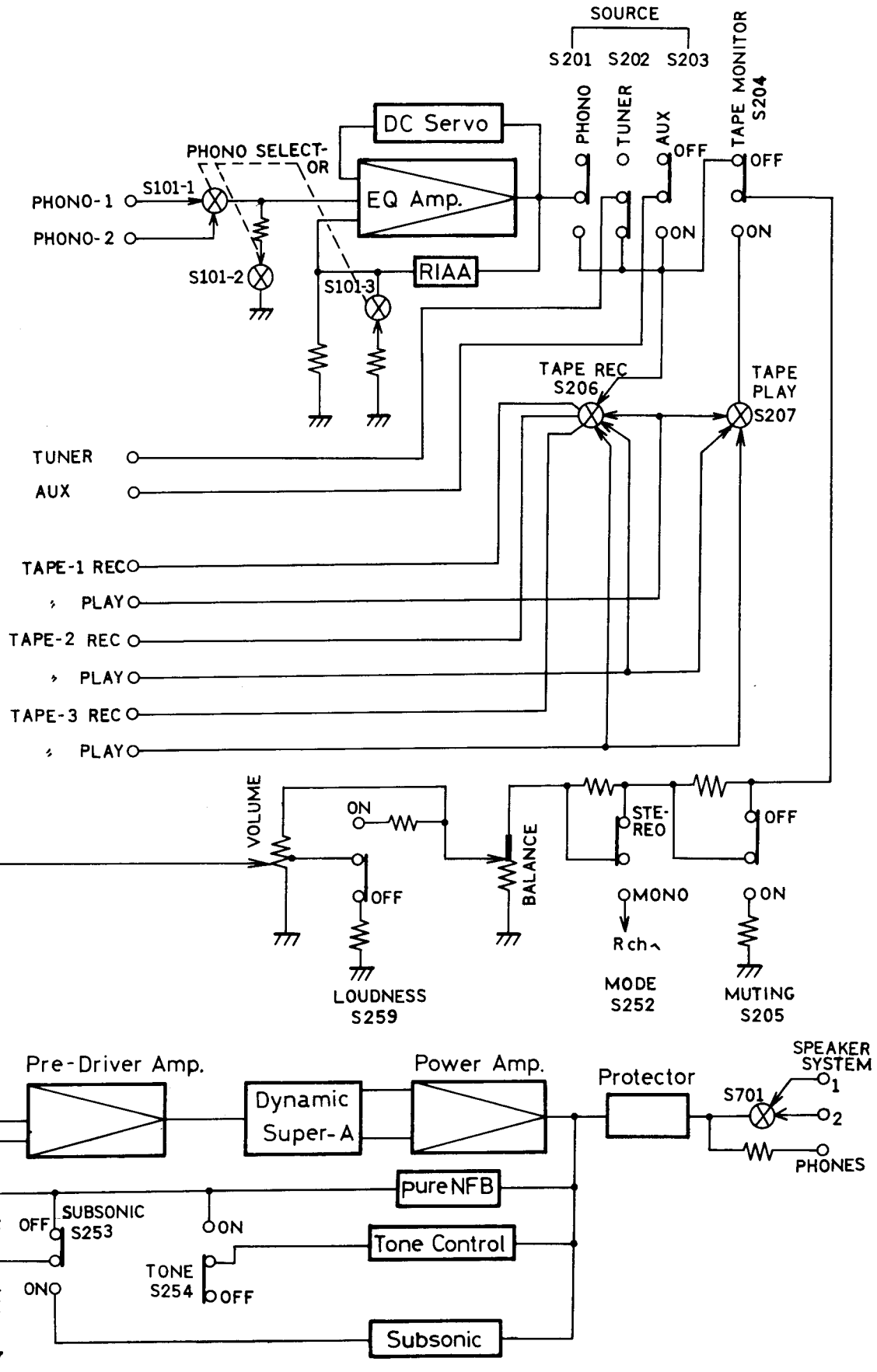


Fig. 6

3. Main Parts Location and Part Numbers

3-(1) Front View

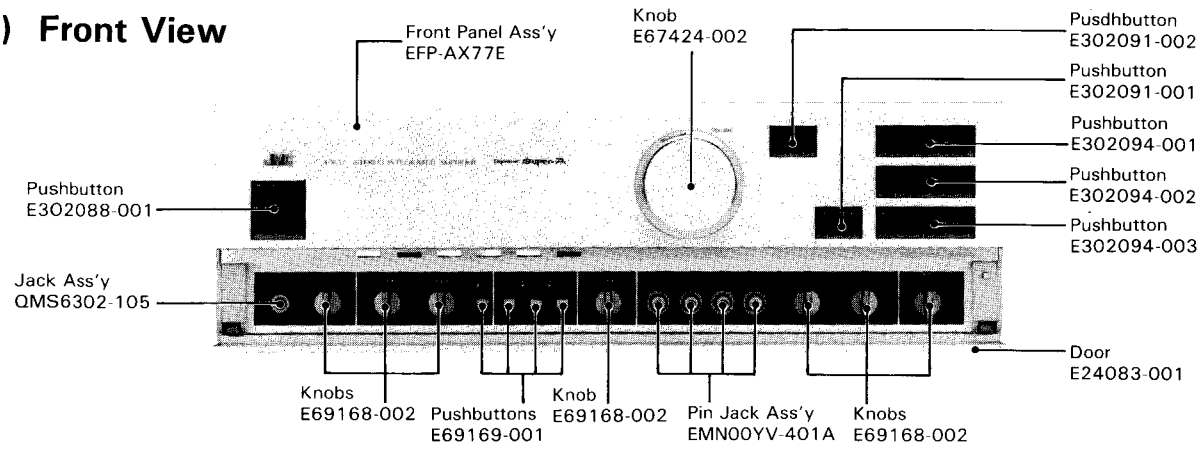


Fig. 3

3-(2) Rear View

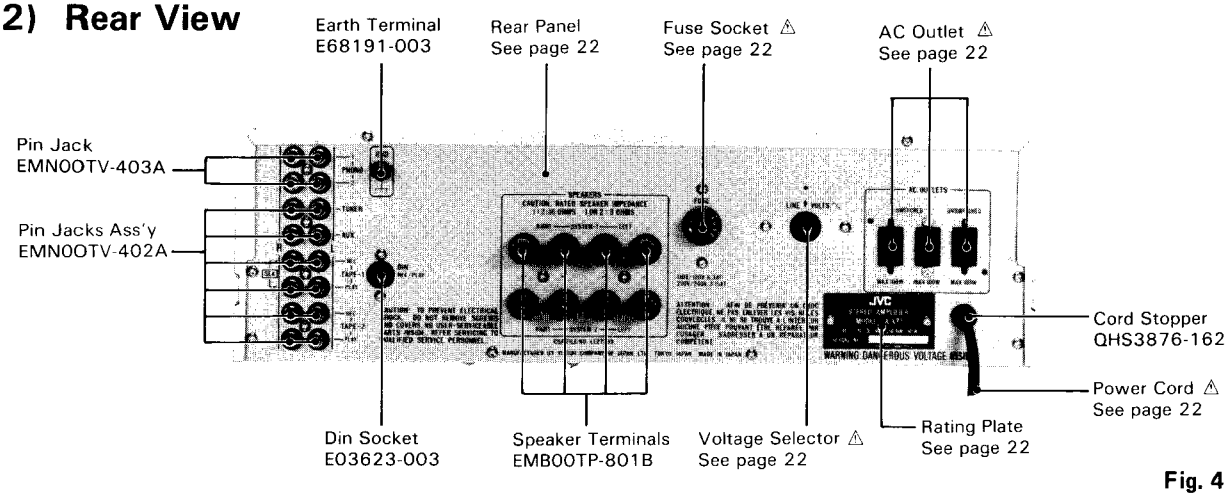


Fig. 4

3-(3) Top View

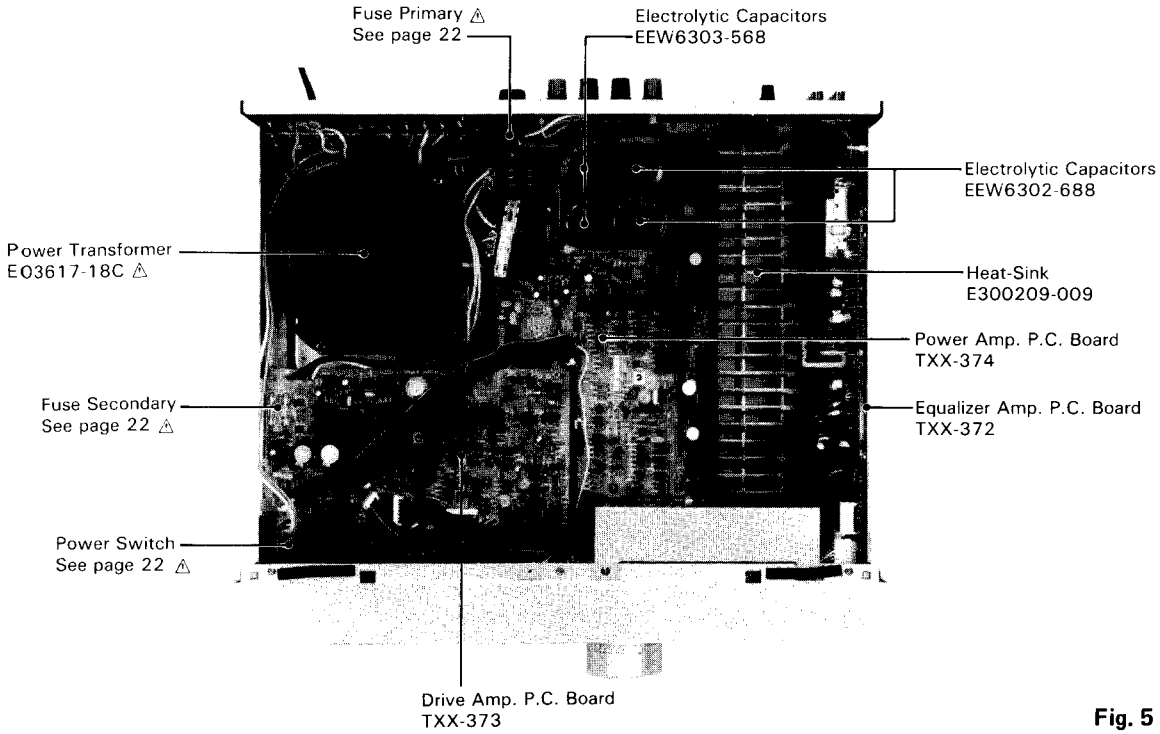
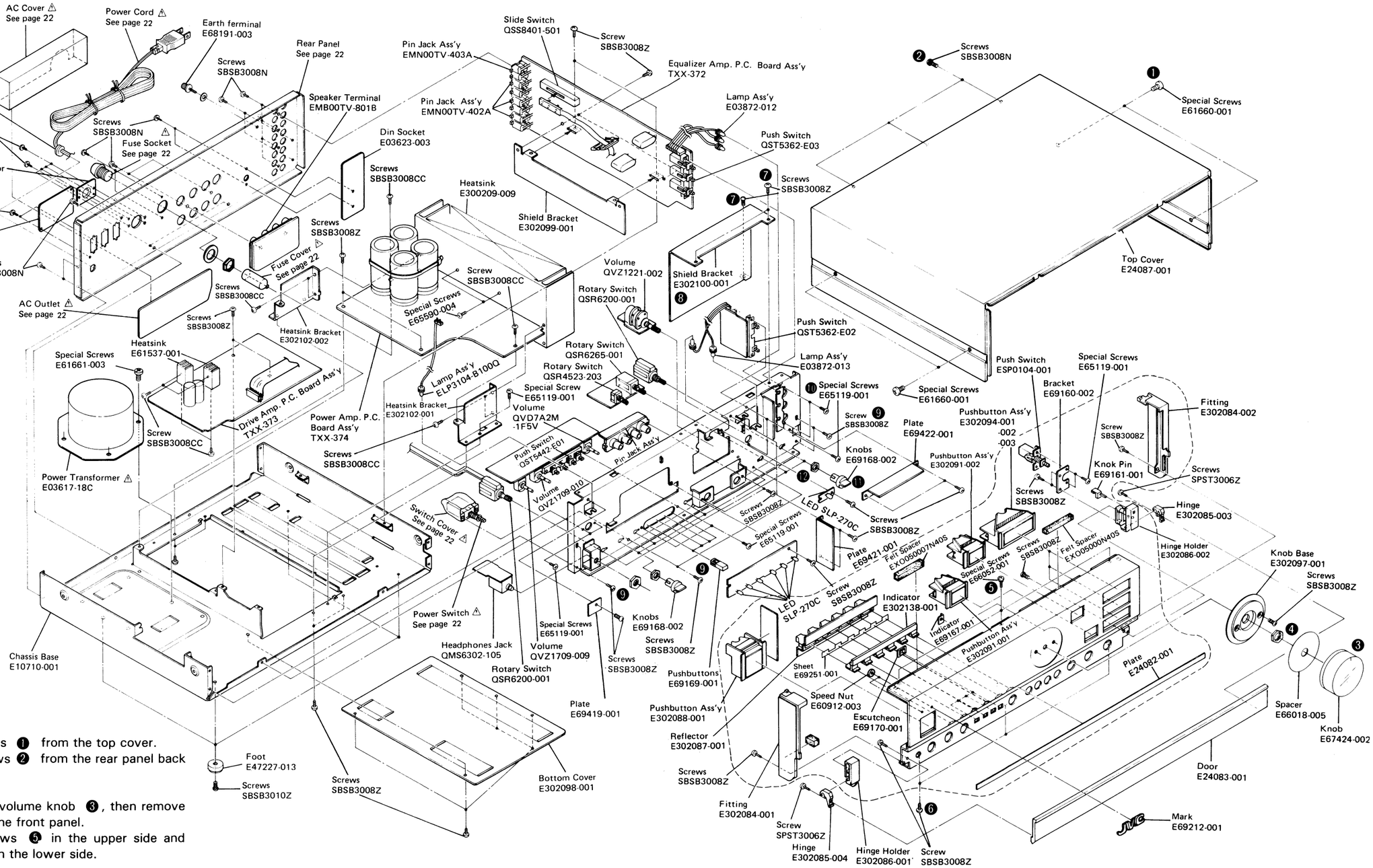


Fig. 5

5. Exploded View and Part Numbers



— Removal Procedures —

(1) Top Cover
1. Remove four screws ❶ from the top cover.
2. Remove three screws ❷ from the rear panel back of top cover.

(2) Front Panel.
1. Take out the main volume knob ❸, then remove the nut ❹ from the front panel.
2. Remove three screws ❺ in the upper side and three screws ❻ in the lower side.

(3) Front Bracket
1. Remove the front panel. (See above)
2. Remove three screws ❼ from the shield cover ❽.
3. Remove six screws ❾ from the front bracket.
4. Remove two screws ❿ from the push switch.
5. Take out three knobs ⓫, then remove three nuts ⓬.

(4) Other Parts
Remove the parts securing screws and plastic rivets, refering to this exploded view.

(Note) SBSB3008CC (coppered screw): for special use.
SBSB3008Z: for normal use.

Fig. 7

6. Amplifier Adjustment Procedures

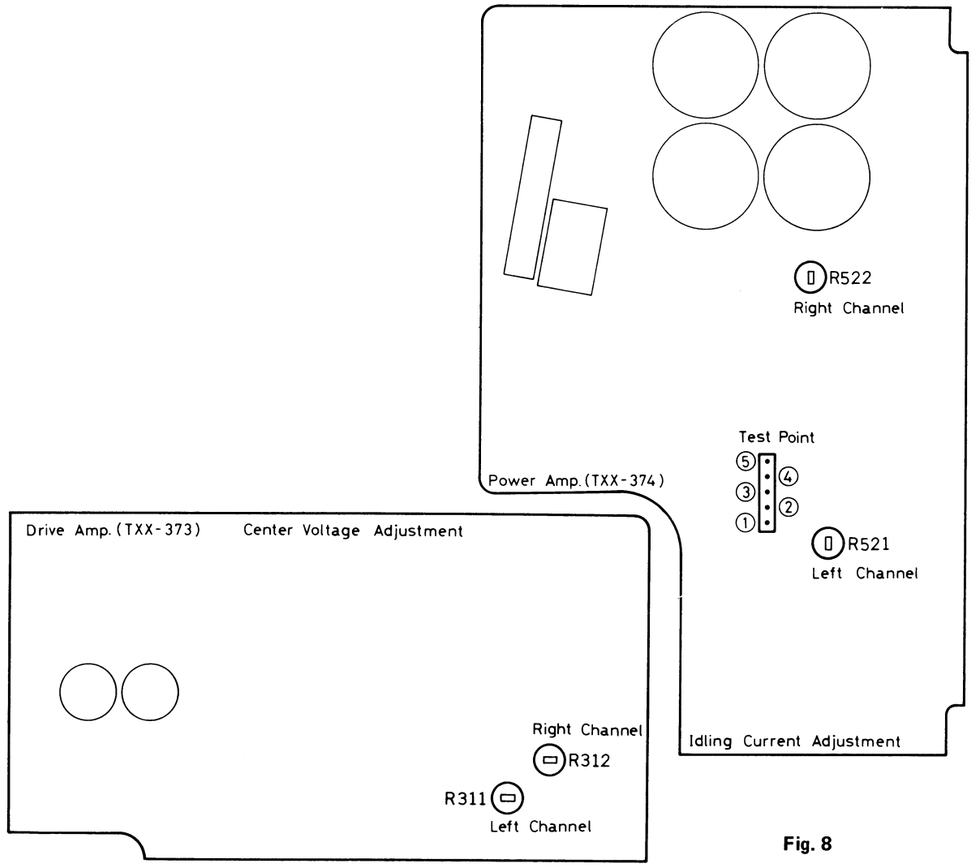


Fig. 8

6-(1) Drive Amp. Center Voltage Adjustment

1. Before turning on the power, set the semi-fixed resistors (R311 for Left channel and R312 for Right channel) of the driver amplifier circuit board (TXX-373) to the center position.
2. Adjust the semi-fixed resistors (R311 and R312) so that the voltage at the following test points of the power amplifier circuit board (TXX-374) is within a range of ±10mV or less five minutes after the power is turned on.
   Left channel: Measure the voltage between test point ① and test point ③ (ground).
   Right channel: Measure the voltage between test point ⑤ and test point ③ (ground).
   The measurements can also be performed at the speaker terminals if the relay is operating normally.

6-(2) Power Amp. Idling Current Adjustment

1. Before turning on the power, turn the semi-fixed resistors (R521 for Left channel and R522 for Right channel) of the power amplifier circuit board fully counterclockwise.
2. Adjust the semi-fixed resistors (R521 and R522) so that the voltage at the following test points of the power amplifier circuit board is within a range of 9mV ~ 13mV after the power is turned on.
   Left channel: Measure the voltage between test point ② (emitter of Q523) and output at the test point ①.
   Right channel: Measure the voltage between test point ④ (emitter of Q524) and output at the test point ⑤.
3. Readjust resistors R521 and R522 about five minutes after the power is turned on (the heat-sink temperature must be sufficiently high) so that the voltage at the test points becomes 11mV. Confirm that the voltage does not vary when the heat-sink temperature increases further.
   Note: Be sure to perform the measurement with the probes and cabinet of the measuring equipment separated from the grounding terminals of A-X77 or of other measuring equipment.

7. Printed Circuit Board Ass'y and Parts List

7-(1) TXX-372 Equalizer Amp. P.C. Board Ass'y

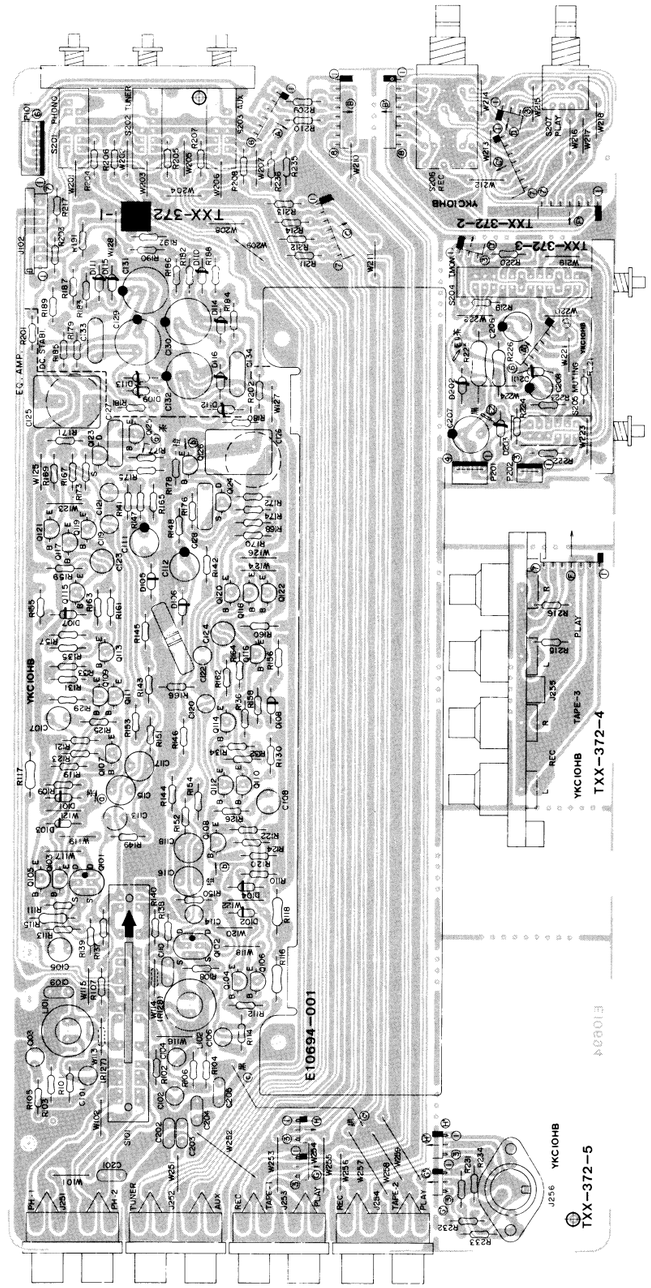


Fig. 9

Resistors

Item No.	Part Number	Rating		Description
R114	QRD141J-331S	330Ω	1/4W	Carbon
R115	QRD129J-152	1.5kΩ	1/2W	UNF. Carbon ⚠
R116	QRD129J-152	"	"	"
R117	QRD129J-152	"	"	"
R118	QRD129J-152	"	"	"
R119	QRD141J-621S	620Ω	1/4W	Carbon
R120	QRD141J-621S	"	"	"
R121	QRD141J-621S	"	"	"
R122	QRD141J-621S	"	"	"
R123	QRD141J-102S	1kΩ	"	"
R124	QRD141J-102S	"	"	"
R125	QRD141J-120S	12Ω	"	"
R126	QRD141J-120S	"	"	"
R127	QRD141J-152S	1.5kΩ	"	" (for W. Germany)
R128	QRD141J-152S	"	"	Carbon (for W. Germany)
R129	QRD141J-152S	"	"	Carbon
R130	QRD141J-152S	"	"	"
R131	QRD141J-390S	39Ω	"	"
R132	QRD141J-390S	"	"	"
R133	QRD141J-390S	"	"	"
R134	QRD141J-390S	"	"	"
R135	QRD141J-473S	47kΩ	"	"
R136	QRD141J-473S	"	"	"
R137	QRD141J-220S	22Ω	"	"
R138	QRD141J-220S	"	"	"
R139	QRD141J-271S	270Ω	"	"
R140	QRD141J-271S	"	"	"
R141	QRD148J-275S	2.7MΩ	"	"
R142	QRD148J-275S	"	"	"
R143	QRD141J-682S	6.8kΩ	"	"
R144	QRD141J-682S	"	"	"
R145	QRD141J-102S	1kΩ	"	"
R146	QRD141J-102S	"	"	"
R147	QRD141J-103S	10kΩ	"	"
R148	QRD141J-103S	"	"	"
R149	QRD141J-163S	16kΩ	"	"
R150	QRD141J-163S	"	"	"
R151	QRD141J-184S	180kΩ	"	"
R152	QRD141J-184S	"	"	"
R153	QRD141J-153S	15kΩ	"	"
R154	QRD141J-153S	"	"	"
R155	QRD141J-681S	680Ω	"	"
R156	QRD141J-681S	"	"	"
R157	QRD149J-151S	150Ω	"	UNF. Carbon ⚠
R158	QRD149J-151S	"	"	"
R159	QRD141J-431S	430Ω	"	Carbon
R160	QRD141J-431S	"	"	"
R161	QRD141J-182S	1.8kΩ	"	"
R162	QRD141J-182S	"	"	"
R163	QRD141J-102S	1kΩ	"	"
R164	QRD141J-102S	"	"	"
R165	QRD141J-152S	1.5kΩ	"	"
R166	QRD141J-152S	"	"	"
R167	QRD149J-470S	47Ω	"	UNF. Carbon ⚠
R168	QRD149J-470S	"	"	"
R169	QRD149J-470S	"	"	"
R170	QRD149J-470S	"	"	"
R171	QRD141J-134S	130kΩ	"	Carbon
R172	QRD141J-134S	"	"	"
R173	QRD141J-475S	4.7MΩ	"	"
R174	QRD141J-475S	"	"	"
R175	QRD141J-182S	1.8kΩ	"	"
R176	QRD141J-182S	"	"	"
R177	QRD141J-752S	7.5kΩ	"	"
R178	QRD141J-752S	"	"	"
R179	QRD141J-224S	220kΩ	"	"
R180	QRD141J-224S	"	"	"
R181	QRZ0052-151	150Ω	"	Fusible ⚠
R182	QRZ0052-151	"	"	"
R183	QRZ0052-151	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R184	QRZ0052-151	150Ω	1/4W	Fusible ⚠
R185	QRD149J-121S	120Ω	"	UNF. Carbon ⚠
R186	QRD149J-121S	"	"	"
R187	QRD149J-121S	"	"	"
R188	QRD149J-121S	"	"	"
R189	QRD149J-121S	"	"	"
R190	QRD149J-121S	"	"	"
R191	QRD149J-121S	"	"	"
R192	QRD149J-121S	"	"	"
R197	QRD141J-431S	430Ω	"	Carbon
R198	QRD141J-431S	"	"	"
R201	QRD141J-221S	220Ω	"	"
R202	QRD141J-221S	"	"	"
R203	QRD141J-221S	"	"	"
R204	QRD141J-221S	"	"	"
R205	QRD141J-331S	330Ω	"	"
R206	QRD141J-331S	"	"	"
R207	QRD141J-331S	"	"	"
R208	QRD141J-331S	"	"	"
R209	QRD141J-221S	220Ω	"	"
R210	QRD141J-221S	"	"	"
R211	QRD141J-105S	1MΩ	"	"
R212	QRD141J-105S	"	"	"
R213	QRD141J-105S	"	"	"
R214	QRD141J-105S	"	"	"
R215	QRD141J-105S	"	"	"
R216	QRD141J-105S	"	"	"
R217	QRD141J-680S	68Ω	"	"
R219	QRD141J-331S	330Ω	"	"
R220	QRD141J-331S	"	"	"
R221	QRD141J-823S	82Ω	"	"
R222	QRD141J-823S	"	"	"
R223	QRD141J-103S	10kΩ	"	"
R224	QRD141J-103S	"	"	"
R225	QRG027J-270S	27Ω	2W	Oxided Metal Film ⚠
R226	QRG017J-150S	15Ω	"	"
R231	QRD141J-334S	330Ω	1/4W	Carbon (for U.K.)
R231	QRD148J-334S	"	"	"
R232	QRD141J-334S	"	"	" (for U.K.)
R232	QRD148J-334S	"	"	"
R233	QRD141J-104S	100kΩ	"	" (for U.K.)
R233	QRD148J-104S	"	"	"
R234	QRD141J-104S	"	"	" (for U.K.)
R234	QRD148J-104S	"	"	"
R235	QRD141J-105S	1MΩ	"	"
R236	QRD141J-105S	"	"	"

⚠ : Safety Parts

Others

Item No.	Part Number	Rating	Description
	E10694-001		Circuit Board
	E302099-001		Shield Bracket
	SBSB3008Z		Tapping Screw
	E03532-001		Shield Case (for W.Germany)
J102	E04365-007		Formed Wire Socket
J251	EMN00TV-403A		Pin Jack Assy
J252	EMN00TV-402A		"
J253	EMN00TV-402A		"
J254	EMN00TV-402A		"
J255	EMN00YV-401A		"
J256	E03623-003		Din Socket
S101	QSS8401-501		Slide Switch
S201	QST5362-E03		Push Switch
S204	QST5362-E02		"
S206	QSR6265-001		Rotary Switch
S207	QSR4523-203		"

Transistors

Item No.	Part Number	Rating	Description	Maker
Q101	2SK146		F.E.T.	Toshiba
Q102	2SK146		"	"
Q103	2SC2240(GR,BL)		Silicon	"
Q104	2SC2240(GR,BL)		"	"
Q105	2SC2240(GR,BL)		"	"
Q106	2SC2240(GR,BL)		"	"
Q107	2SA970(GR,BL)		"	"
Q108	2SA970(GR,BL)		"	"
Q109	2SC2240(GR,BL)		"	"
Q110	2SC2240(GR,BL)		"	"
Q111	2SC2240(GR,BL)		"	"
Q112	2SC2240(GR,BL)		"	"
Q113	2SA872AV(E,F)		"	Hitachi
Q114	2SA872AV(E,F)		"	"
Q115	2SC2240(GR,BL)		"	Toshiba
Q116	2SC2240(GR,BL)		"	"
Q117	2SC1815(Y,GR)		"	"
Q118	2SC1815(Y,GR)		"	"
Q119	2SC2546(E)		"	Hitachi
Q120	2SC2546(E)		"	"
Q121	2SA1084(E)		"	"
Q122	2SA1084(E)		"	"
Q123	2SK163(L1)		F.E.T.	NEC
Q124	2SK163(L1)		"	"
Q125	2SC1815(Y,GR)		Silicon	Toshiba
Q126	2SC1815(Y,GR)		"	"

Diodes

Item No.	Part Number	Rating	Description	Maker
D109	RD20EB3		Silicon (Zener)	NEC
D110	RD20EB3		" (")	"
D111	RD20EB3		" (")	"
D112	RD20EB3		" (")	"
D113	RD20EB3		" (")	"
D114	RD20EB3		" (")	"
D115	RD20EB3		" (")	"
D116	RD20EB3		" (")	"
D201	RD11EB3		" (")	"
D202	RD10EB3		" (")	"
D203	RD10EB3		" (")	"

Coils

Item No.	Part Number	Rating	Description
L101	EQL0111-151		Inductor (for W. Germany)
L102	EQL0111-151		Inductor (for W. Germany)

Capacitors

Item No.	Part Number	Rating		Description
C101	QFS81HJ-471	470pF	50V	Polystyrene
C102	QFS81HJ-471	"	"	"
C103	QFS81HJ-101	100pF	"	Polystyrene (Except W.Germany)
C104	QFS81HJ-101	"	"	Polystyrene (Except W.Germany)
C105	QFS81HJ-472	4700pF	"	Polystyrene
C106	QFS81HJ-472	"	"	"
C107	QFS81HJ-472	4700pF	"	"
C108	QFS81HJ-472	"	"	"
C109	QFP31HJ-471	470pF	"	Polypropylene (for W. Germany)
C110	QFP31HJ-471	"	"	Polypropylene (for W.Germany)
C111	QET51AR-227H	220μF	10V	Electrolytic
C112	QET51AR-227H	"	"	"
C113	QFS81HG-472	4700pF	50V	Polystyrene
C114	QFS81HG-472	"	"	"
C115	QFS81HG-822	8200pF	"	"
C116	QFS81HG-822	"	"	"
C117	QFS81HG-822	"	"	"
C118	QFS81HG-822	"	"	"
C119	QFS81HJ-101	100pF	"	"
C120	QFS81HJ-101	"	"	"
C121	QFS81HJ-331	330pF	"	"
C122	QFS81HJ-331	"	"	"
C123	QFS81HJ-103	0.01μF	"	"
C124	QFS81HJ-103	"	"	"
C125	EFZ0080-475	4.7μF		Metallized Mylar
C126	EFZ0080-475	"		"
C127	EFZ0089-474	0.47μF		"
C128	EFZ0089-474	"		"
C129	QET51HR-227H	220μF	50V	Electrolytic
C130	QET51HR-227H	"	"	"
C131	QET51HR-227H	"	"	"
C132	QET51HR-227H	"	"	"
C139	QFP31HJ-101	100pF	"	Polypropylene (for W. Germany)
C140	QFP31HJ-101	"	"	Polypropylene (for W.Germany)
C201	QFS81HJ-103	0.01μF	"	Polystyrene
C202	QFM81HK-103	"	"	Mylar
C203	QFM81HK-103	"	"	"
C204	QFM81HK-103	"	"	"
C205	QFM81HK-103	"	"	"
C206	QET51CR-107H	100μF	16V	Electrolytic
C207	QET51CR-227H	220μF	"	"
C208	QET51CR-476H	47μF	"	"

Resistors

Item No.	Part Number	Rating		Description
R101	QRD141J-101S	100Ω	1/4W	Carbon
R102	QRD141J-101S	"	"	"
R103	QRD141J-473S	47kΩ	"	"
R104	QRD141J-473S	"	"	"
R105	QRD141J-471S	470Ω	"	" (forU.K.)
R105	QRD148J-471S	"	"	" (Except W.Germany)
R106	QRD141J-471S	"	"	Carbon(for U.K.)
R106	QRD148J-471S	"	"	" (Except W.Germany)
R107	QRD141J-5R6S	5.6Ω	"	Carbon
R108	QRD141J-5R6S	"	"	"
R109	QRD141J-823S	82kΩ	"	"
R110	QRD141J-823S	"	"	"
R111	QRD141J-153S	15kΩ	"	"
R112	QRD141J-153S	"	"	"
R113	QRD141J-331S	330Ω	"	"

Transistors

Item No.	Part Number	Rating	Description	Maker
Q301	2SK150A(GR,BL)		F.E.T.	Toshiba
Q302	2SK150A(GR,BL)		"	"
Q303	2SC1815(Y,GR)		Silicon	"
Q304	2SC1815(Y,GR)		"	"
Q305	1SC1815(Y,GR)		"	"
Q306	2SC1815(Y,GR)		"	"
Q307	2SC1815(Y,GR)		"	"
Q308	2SC1815(Y,GR)		"	"
Q309	2SC458(C,D)		"	Hitachi
Q310	2SC458(C,D)		"	"
Q311	2SC458(C,D)		"	"
Q312	2SC458(C,D)		"	"
Q313	2SC2546(E,F)		"	
Q314	2SC2546(E,F)		"	
Q315	2SA1029(C,D)		"	Hitachi
Q316	2SA1029(C,D)		"	"
Q317	2SA1029(C,D)		"	"
Q318	2SA1029(C,D)		"	"
Q319	2SA1208(D,E)		"	Sanyo
Q320	2SA1208(D,E)		"	"
Q321	2SA1208(D,E)		"	"
Q322	2SA1208(D,E)		"	"
Q323	2SC2910(S,T)		"	"
Q324	2SC2910(S,T)		"	"
Q601	2SK246(GR)		F.E.T.	Toshiba
Q602	2SK246(GR)		"	"
Q603	2SD313V(D,E)		Silicon	Sanyo
Q604	2SB507V(D,E)		"	"
Q605	2SC2240(GR,BL)		"	Toshiba
Q606	2SA970(GR,BL)		"	"
Q651	2SA965(O,Y)		"	"
Q652	2SC1815(Y,GR)		"	"
Q653	2SC1815(Y,GR)		"	"
Q654	2SC1815(Y,GR)		"	"

Diodes

Item No.	Part Number	Rating	Description	Maker
D301	1S2076-31		Silicon	Hitachi
D302	1S2076-31		"	"
D303	1S2076-31		"	"
D304	1S2076-31		"	"
D305	1S2076-31		"	"
D306	1S2076-31		"	"
D307	1S2076-31		"	"
D308	1S2076-31		"	"
D309	1S2076-31		"	"
D310	1S2076-31		"	"
D311	RD6.2EB3		"(Zener)	NEC
D313	RD2.7EB2		"(")	"
D314	RD2.7EB2		"(")	"
D315	1S2076-31		"	Hitachi
D316	1S2076-31		"	"
D601	10DF2FD		"	Nippon Inter
D602	10DF2FD		"	"
D603	10DF2FD		"	"
D604	10DF2FD		"	"
D606	RD5.6EB3		"(Zener)	NEC
D651	RD5.6EB3		"(")	"
D652	1S2076-31		"	Hitachi
D653	SLP-270C		L.E.D.	Sanyo
D654	SLP-270C		"	"
D655	SLP-270C		"	"
D656	SLP-270C		"	"
D657	SLP-270C		"	"
D658	SLP-270C		"	"
D659	RD2.7EB2		Silicon (Zener)	NEC
D660	RD2.7EB2		"(")	"
D661	SLP-270C		L.E.D.	Sanyo

Capacitors

Item No.	Part Number	Rating		Description
C251	QFP31HJ-331	330pF	50V	Polypropylene
C252	QFP31HJ-331	"	"	"
C253	QFM81HJ-273	0.027μF	"	Mylar
C254	QFM81HJ-273	"	"	"
C301	QFS81HJ-330	33pF	"	Polystyrene
C302	QFS81HJ-330	"	"	"
C303	QFS81HJ-331	330pF	"	"
C304	QFS81HJ-331	"	"	"
C305	QFS82BJ-4R0	4.0Ω		"
C306	QFS82BJ-4R0	"		"
C307	QFS82BJ-330	33pF		"
C308	QFS82BJ-330	"		"
C309	QFS81HJ-680	68pF	50V	
C310	QFS81HJ-680	"	"	"
C311	QFS81HJ-220	22pF	"	"
C312	QFS81HJ-220	"	"	"
C313	QFS81HJ-220	"	"	"
C314	QFS81HJ-220	"	"	"
C315	QET51HR-105H	1μF	"	Electrolytic
C401	QFS81HJ-820	82pF	"	Polystyrene
C402	QFS81HJ-820	"	"	"
C403	QEZ0046-475	4.7μF	"	N.P.Electrolytic
C404	QEZ0046-475	"	"	"
C405	QEZ0046-225	2.2μF	"	"
C406	QEZ0046-225	"	"	"
C407	QFM81HJ-183	0.018μF	"	Mylar
C408	QFM81HJ-183	"	"	"
C409	QFM81HJ-184	0.18μF	"	"
C410	QFM81HJ-184	"	"	"
C411	QFP31HJ-332	3300pF	"	Polypropylene
C412	QFP31HJ-332	"	"	"
C413	QFM81HJ-333	0.033μF	"	Mylar
C414	QFM81HJ-333	"	"	"
C415	QFP31HJ-391	390pF	"	Polypropylene
C416	QFP31HJ-391	"	"	"
C417	QFP31HJ-432	4300pF	"	"
C418	QFP31HJ-432	"	"	"
C419	QFM81HJ-274	0.27μF	"	Mylar
C420	QFM81HJ-274	"	"	"
C603	QET52AR-477E	470μF	100V	Electrolytic
C604	QET52AR-477E	"	"	"
C605	QET51JR-225H	2.2μF	63V	"
C606	QET51JR-225H	"	"	"
C607	QFP31HJ-101	100pF	50V	Polypropylene
C608	QFP31HJ-101	"	"	"
C610	QET51CR-476H	47μF	16V	Electrolytic
C611	QET51JR-477H	470μF	63V	"
C612	QET51JR-107H	"	"	"
C651	QET51HR-225H	2.2μF	50V	"
C652	QFM81HJ-473	0.047μF	"	Mylar
C653	QET51HR-225H	2.2μF	"	Electrolytic
C654	QET51HR-225H	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R251	QRD141J-333S	33kΩ	1/4W	Carbon
R252	QRD141J-333S	"	"	"
R253	QRD141J-105S	1MΩ	"	"
R254	QRD141J-105S	"	"	"
R255	QRD141J-203S	20kΩ	"	"
R256	QRD141J-203S	"	"	"
R257	QRD141J-472S	4.7kΩ	"	"
R258	QRD141J-472S	"	"	"
R259	QVD7A2M-1F5V			Variable
R260	QVZ1221-002			"

7-(2) TXX-373 Drive Amp. P.C. Board Ass'y

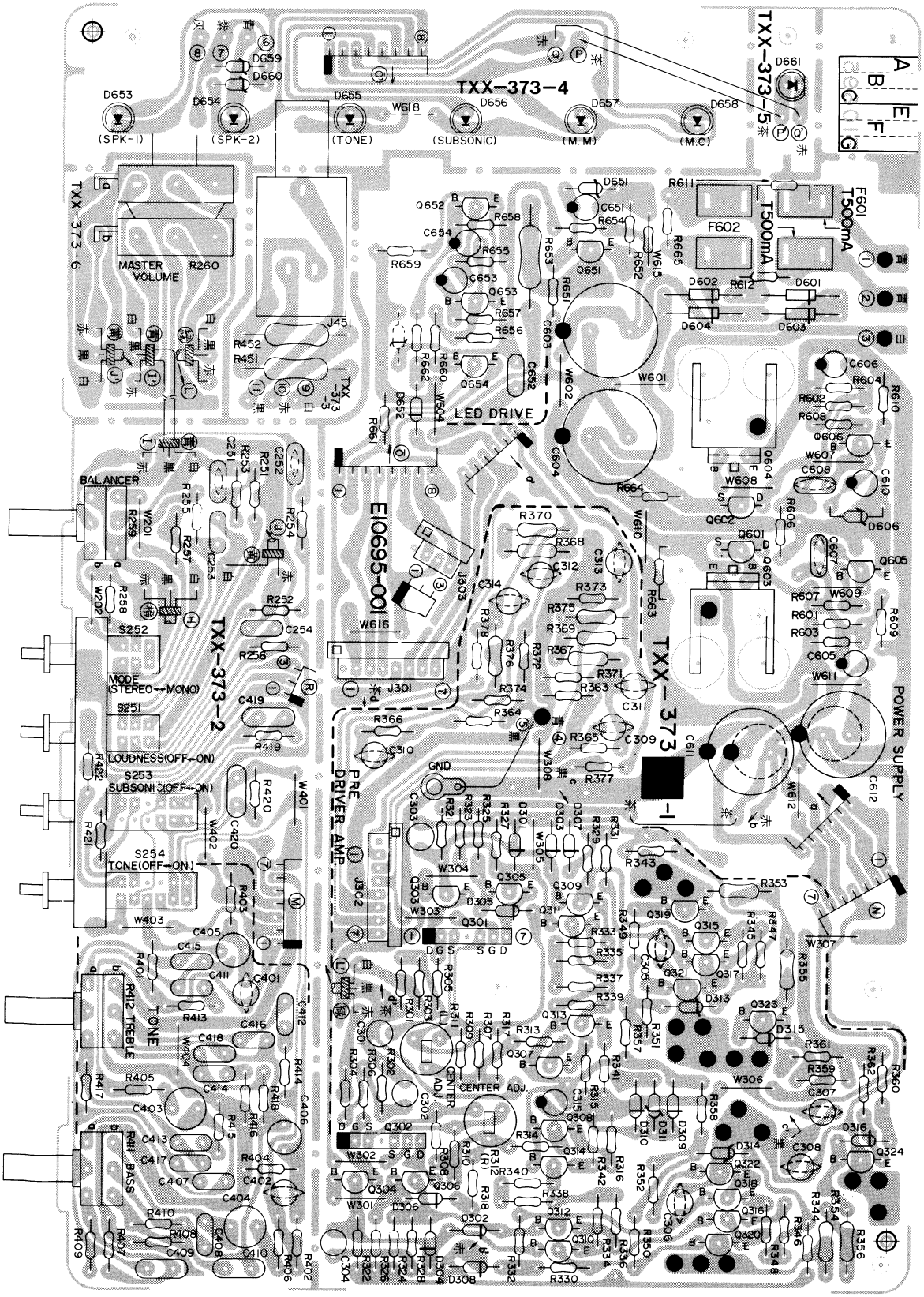


Fig. 10

A-X77
No. 2590

7-(3) TXX-374 Power Amp. P.C. Board Ass'y

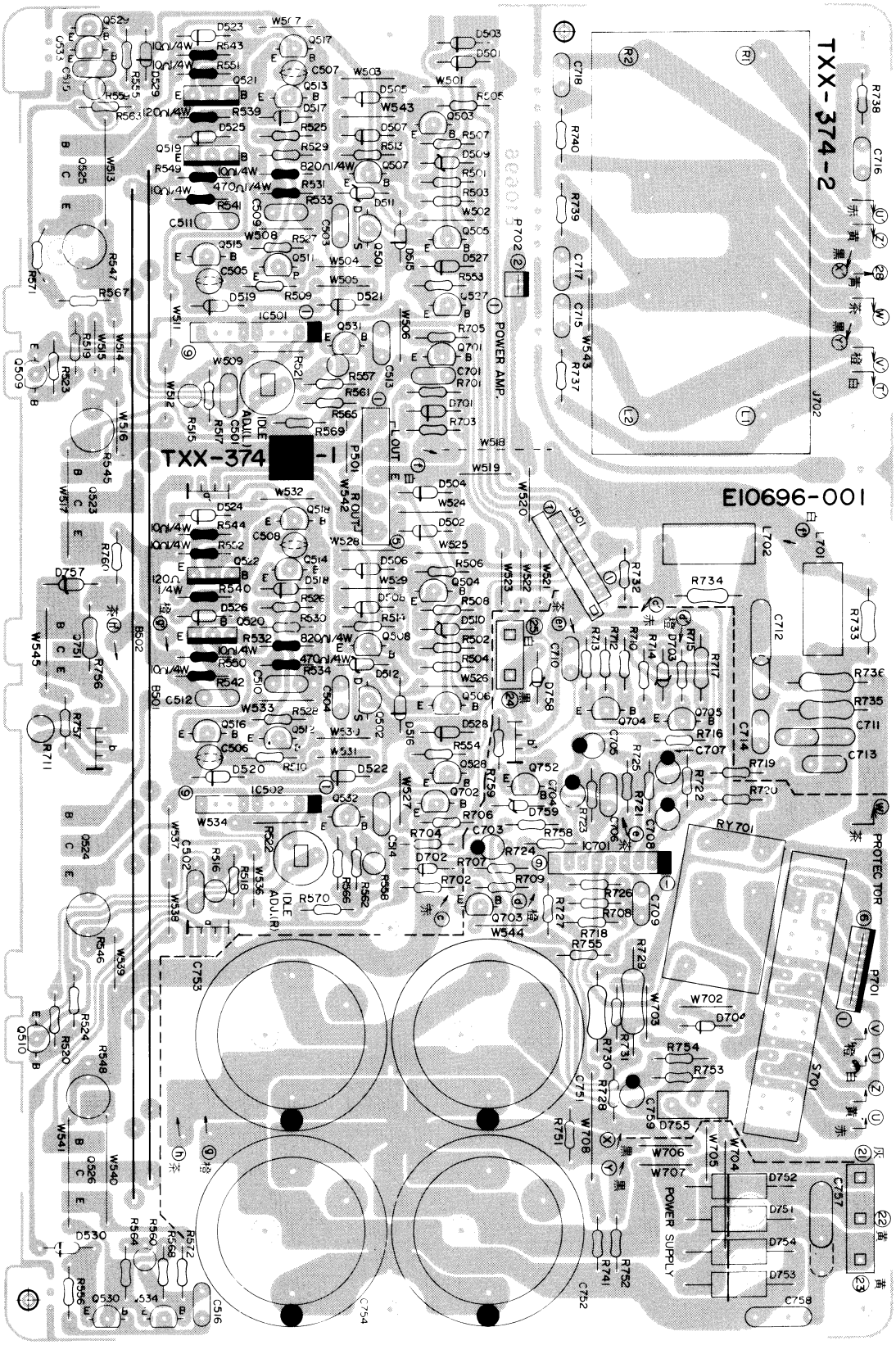


Fig. 11

Resistors

Item No.	Part Number	Rating		Description
R301	QRD141J-105S	1MΩ	1/4W	Carbon
R302	QRD141J-105S	"	"	"
R303	QRD141J-151S	150Ω	"	"
R304	QRD141J-151S	"	"	"
R305	QRD141J-470S	47Ω	"	"
R306	QRD141J-470S	"	"	"
R307	QRD141J-220S	22Ω	"	"
R308	QRD141J-220S	"	"	"
R309	QRD141J-220S	"	"	"
R310	QRD141J-220S	"	"	"
R311	QVP4A0B-101			Variable
R312	QVP4A0B-101			"
R313	QRD141J-123S	12kΩ	1/4W	Carbon
R314	QRD141J-123S	"	"	"
R315	QRD141J-222S	2.2kΩ	"	"
R316	QRD141J-222S	"	"	"
R317	QRD141J-223S	22kΩ	"	"
R318	QRD141J-223S	"	"	"
R321	QRD141J-682S	6.8kΩ	"	"
R322	QRD141J-682S	"	"	"
R323	QRD141J-682S	"	"	"
R324	QRD141J-682S	"	"	"
R325	QRD141J-154S	150kΩ	"	"
R326	QRD141J-154S	"	"	"
R327	QRD141J-221S	220Ω	"	"
R328	QRD141J-221S	"	"	"
R329	QRD141J-681S	680Ω	"	"
R330	QRD141J-681S	"	"	"
R331	QRD141J-681S	"	"	"
R332	QRD141J-681S	"	"	"
R333	QRD141J-391S	390Ω	"	"
R334	QRD141J-391S	"	"	"
R335	QRD141J-391S	"	"	"
R336	QRD141J-391S	"	"	"
R337	QRD148J-392S	3.9kΩ	"	"
R338	QRD148J-392S	"	"	"
R339	QRD148J-392S	"	"	"
R340	QRD148J-392S	"	"	"
R341	QRD141J-152S	1.5kΩ	"	"
R342	QRD141J-152S	"	"	"
R343	QRD149J-101S	100Ω	"	UNF. Carbon ⚠
R344	QRD149J-101S	"	"	"
R345	QRD141J-5R6S	5.6Ω	"	Carbon
R346	QRD141J-5R6S	"	"	"
R347	QRD141J-5R6S	"	"	"
R348	QRD141J-5R6S	"	"	"
R349	QRD141J-151S	150Ω	"	"
R350	QRD141J-151S	"	"	"
R351	QRD141J-151S	"	"	"
R352	QRD141J-151S	"	"	"
R353	QRD129J-272	2.7kΩ	1/2W	UNF. Carbon ⚠
R354	QRD129J-272	"	"	"
R355	QRD129J-272	"	"	"
R356	QRD129J-272	"	"	"
R357	QRD141J-104S	100kΩ	1/4W	Carbon
R358	QRD141J-104S	"	"	"
R359	QRD149J-221S	220Ω	"	UNF. Carbon ⚠
R360	QRD149J-221S	"	"	"
R361	QRD149J-221S	"	"	"
R362	QRD149J-221S	"	"	"
R363	QRD141J-471S	470Ω	"	Carbon
R364	QRD141J-471S	"	"	"
R365	QRD141J-472S	4.7kΩ	"	"
R366	QRD141J-472S	"	"	"
R367	QRD129J-122	1.2KΩ	1/2W	UNF. Carbon ⚠
R368	QRD129J-122	"	"	"
R369	QRD129J-272	2.7Ω	"	"
R370	QRD129J-272	"	"	"
R371	QRD148J-331S	330Ω	1/4W	Carbon
R372	QRD148J-331S	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R373	QRD148J-331S	330Ω	1/4W	Carbon
R374	QRD148J-331S	"	"	"
R375	QRD129J-392	3.9kΩ	1/2W	UNF. Carbon ⚠
R376	QRD129J-392	"	"	"
R377	QRD141J-475S	4.7MΩ	1/4W	Carbon
R378	QRD141J-475S	"	"	"
R401	QRD141J-684S	680kΩ	"	"
R402	QRD141J-684S	"	"	"
R403	QRD141J-223S	22kΩ	"	"
R404	QRD141J-223S	"	"	"
R405	QRD141J-223S	"	"	"
R406	QRD141J-223S	"	"	"
R407	QRD141J-202S	2kΩ	"	"
R408	QRD141J-202S	"	"	"
R409	QRD141J-133S	13kΩ	"	"
R410	QRD141J-133S	"	"	"
R411	QVZ1709-009			Variable
R412	QVZ1709-010			"
R413	QRD141J-432S	4.3kΩ	1/4W	Carbon
R414	QRD141J-432S	"	"	"
R415	QRD141J-391S	390Ω	"	"
R416	QRD141J-391S	"	"	"
R417	QRD141J-183S	18kΩ	"	"
R418	QRD141J-183S	"	"	"
R419	QRD141J-105S	1MΩ	"	"
R420	QRD141J-105S	"	"	"
R421	QRD148J-680S	68Ω	"	"
R422	QRD148J-680S	"	"	"
R451	QRG027J-331	330Ω	2W	Oxied Metal Film ⚠
R452	QRG027J-331	"	"	"
R601	QRD148J-623S	6.2kΩ	1/4W	Carbon
R602	QRD148J-563S	5.6kΩ	"	"
R603	QRD148J-394S	390kΩ	"	"
R604	QRD148J-274S	270kΩ	"	"
R607	QRD149J-221S	220Ω	"	UNF. Carbon ⚠
R608	QRD149J-221S	"	"	"
R609	QRD148J-563S	56kΩ	"	Carbon
R651	QRD141J-623S	62kΩ	"	"
R652	QRD149J-221S	220Ω	"	UNF. Carbon ⚠
R653	QRG027J-122	12kΩ	2W	Oxied Metal Film ⚠
R654	QRD141J-473S	47kΩ	1/4W	Carbon
R655	QRD141J-472S	4.7kΩ	"	"
R656	QRD141J-472S	"	"	"
R657	QRD141J-394S	390kΩ	"	"
R658	QRD141J-394S	"	"	"
R659	QRD141J-182S	1.8kΩ	"	"
R660	QRD141J-103S	10kΩ	"	"
R661	QRD141J-101S	100Ω	"	"
R662	QRD141J-103S	10kΩ	"	"
R663	QRD141J-563S	56kΩ	"	"
R664	QRD141J-563S	"	"	"
R665	QRD141J-105S	1MΩ	"	"

⚠ : Safety Parts

Others

Item No.	Part Number	Rating	Description
	EMG7331-001		Fuse Clip
	E10695-001		Circuit Board
	SBSB3008CC		Screw (Coppered)
	SBSB3008M		Screw
	E61537-001		Heat-Sink
J302	E04365-007		Formed Wire
			Socket
J303	E04365-003		3P Socket
J451	QMS6302-105		Jack Ass'y
P301	QMV5005-003		3P Plug Ass'y
S251	QST5442-E01		Push Switch

Capacitors

Item No.	Part Number	Rating		Description
C709	QFM81HJ-102	1000pF	50V	Mylar
C711	QFM81HJ-104	0.1μF	"	"
C712	QFM81HJ-104	"	"	"
C713	QFM81HJ-104	"	"	"
C714	QFM81HJ-104	"	"	"
C715	QFM81HJ-103	0.01μF	"	" (for W.Germany)
C716	QFM81HJ-103	"	"	Mylar (for W.Germany)
C717	QFM81HJ-103	"	"	Mylar (for W.Germany)
C718	QFM81HJ-103	"	"	Mylar (for W.Germany)
C751	EEW6303-568	5600μF	"	Electrolytic
C752	EEW6303-568	"	"	"
C753	EEW6302-688	6800μF	"	"
C754	EEW6302-688	"	"	"
C757	QFZ0074-224	0.022μF		Metallized Mylar
C758	QFZ0074-104	0.1μF		"
C759	QET51HR-105H	1μF	50V	Electrolytic

Resistors

Item No.	Part Number	Rating		Description
R501	QRD141J-473S	47kΩ	1/4W	Carbon
R504	QRD141J-473S	"	"	"
R505	QRD149J-331S	330Ω	"	UNF. Carbon ⚠
R506	QRD149J-331S	"	"	"
R507	QRD149J-222S	2.2kΩ	"	"
R508	QRD149J-222S	"	"	"
R509	QRD149J-271S	270Ω	"	"
R510	QRD149J-271S	"	"	"
R513	QRD149J-470S	47Ω	"	"
R514	QRD149J-470S	"	"	"
R517	QRD141J-151S	150Ω	"	Carbon
R518	QRD141J-151S	"	"	"
R519	QRD141J-391S	390Ω	"	"
R520	QRD141J-391S	"	"	"
R521	QVZ3501-471	470Ω		Variable
R522	QVZ3501-471	"		"
R523	QRD141J-431S	430Ω	"	Carbon
R524	QRD141J-431S	"	"	"
R525	QRD149J-471S	470Ω	"	UNF. Carbon ⚠
R526	QRD149J-471S	"	"	"
R527	QRD149J-471S	"	"	"
R528	QRD149J-471S	"	"	"
R529	QRD149J-471S	"	"	"
R530	QRD149J-471S	"	"	"
R531	QRZ0052-821	820Ω	"	Fusible ⚠
R532	QRZ0052-821	"	"	"
R533	QRZ0052-471	470Ω	"	"
R534	QRZ0052-471	"	"	"
R539	QRZ0052-121	120Ω	"	"
R540	QRZ0052-121	"	"	"
R541	QRZ0052-100	10Ω	"	"
R542	QRZ0052-100	"	"	"
R543	QRZ0052-100	"	"	"
R544	QRZ0052-100	"	"	"
R545	ERZ0001-R22	0.22Ω	"	Cement ⚠
R546	ERZ0001-R22	"	"	"
R547	ERZ0001-R22	"	"	"
R548	ERZ0001-R22	"	"	"
R549	QRZ0052-100	10Ω	"	Fusible ⚠
R550	QRZ0052-100	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R551	QRZ0052-100	10Ω	1/4W	Fusible ⚠
R552	QRZ0052-100	"	"	"
R553	QRD141J-103S	10kΩ	"	Carbon
R554	QRD141J-103S	"	"	"
R555	QRD141J-103S	"	"	"
R556	QRD141J-103S	"	"	"
R561	QRD141J-820S	82Ω	"	"
R562	QRD141J-820S	"	"	"
R563	QRD141J-820S	"	"	"
R564	QRD141J-820S	"	"	"
R565	QRD148J-121S	120Ω	"	"
R566	QRD148J-121S	"	"	"
R567	QRD148J-121S	"	"	"
R568	QRD148J-121S	"	"	"
R569	QRD148J-181S	180Ω	"	"
R570	QRD148J-181S	"	"	"
R571	QRD148J-161S	160Ω	"	"
R572	QRD148J-161S	"	"	"
R701	QRD141J-222S	2.2kΩ	"	"
R702	QRD141J-222S	"	"	"
R703	QRD141J-183S	18kΩ	"	"
R704	QRD141J-183S	"	"	"
R705	QRD141J-333S	33kΩ	"	"
R706	QRD141J-333S	"	"	"
R707	QRD141J-103S	10kΩ	"	"
R708	QRD141J-473S	47kΩ	"	"
R709	QRD141J-332S	3.3kΩ	"	"
R718	QRD141J-123S	12kΩ	"	"
R719	QRD141J-563S	56kΩ	"	"
R720	QRD141J-563S	"	"	"
R721	QRD141J-273S	27kΩ	"	"
R722	QRD141J-273S	"	"	"
R723	QRD141J-333S	33kΩ	"	"
R724	QRD141J-334S	"	"	"
R725	QRD141J-683S	68kΩ	"	"
R726	QRD141J-683S	" Ω	"	"
R727	QRD141J-273S	27kΩ	"	"
R728	QRD149J-270S	"	"	UNF. Carbon ⚠
R729	QRG027J-471	470Ω	2W	Oxide Metal Film ⚠
R730	QRG017J-271S	270Ω	1W	"
R731	QRD141J-103S	10kΩ	1/4W	Carbon
R732	QRD141J-123S	12kΩ	"	"
R733	QRD129J-330	33Ω	1/2W	UNF. Carbon ⚠
R734	QRD129J-330	"	"	"
R735	QRX017J-4R7S	4.7Ω	1W	Metal Carbon ⚠
R736	QRX017J-4R7S	"	"	"
R737	QRZ0052-100	10Ω	1/4W	Fusible ⚠ (for W. Germany)
R738	QRZ0052-100	"	"	Fusible ⚠ (for W. Germany)
R739	QRZ0052-100	"	"	Fusible ⚠ (for W. Germany)
R740	QRZ0052-100	"	"	Fusible ⚠ (for W. Germany)
R741	QRD141J-103S	10kΩ	"	Carbon
R751	QRD141J-563S	56kΩ	"	"
R752	QRD141J-563S	"	"	"
R753	QRD141J-103S	10kΩ	"	"
R754	QRD141J-822S	8.2kΩ	"	"
R755	QRD141J-104S	100kΩ	"	"
R756	QRD129J-150	15Ω	1/2W	UNF. Carbon ⚠
R757	QRD141J-103S	10kΩ	1/4W	Carbon
R758	QRD141J-682S	6.8kΩ	"	"
R759	QRD141J-222S	2.2kΩ	"	"
R760	QRD149J-4R7S	4.7Ω	"	UNF Carbon ⚠

⚠ : Safety Parts

Transistors

Item No.	Part Number	Rating	Description	Maker
Q501	2SK170(BL,V)		F.E.T.	Toshiba
Q502	2SK170(BL,V)		"	"
Q503	2SA970(GR,BL)		Silicon	"
Q504	2SA970(GR,BL)		"	"
Q505	2SC2910(S,T)		"	Sanyo
Q506	2SC2910(S,T)		"	"
Q507	2SC2910(S,T)		"	"
Q508	2SC2910(S,T)		"	"
Q509	2SC1815(Y,GR)		"	Toshiba
Q510	2SC1815(Y,GR)		"	"
Q511	2SC1815(Y,GR)		"	"
Q512	2SC1815(Y,GR)		"	"
Q513	2SA1015(Y,GR)		"	"
Q514	2SA1015(Y,GR)		"	"
Q515	2SC2240(BL)		"	"
Q516	2SC2240(BL)		"	"
Q517	2SA970(BL)		"	"
Q518	2SA970(BL)		"	"
Q519	2SD669A(B,C)		"	Hitachi
Q520	2SD669A(B,C)		"	"
Q521	2SB649A(B,C)		"	"
Q522	2SB649A(B,C)		"	"
Q523	2SC2921LF(Q,Y)		"	
Q524	2SC2921LF(O,Y)		"	
Q525	2SA1215LF(O,Y)		"	
Q526	2SA1215LF(O,Y)		"	
Q527	2SA1015(Y)		"	Toshiba
Q528	2SA1015(Y)		"	"
Q529	2SC1815(Y)		"	"
Q530	2SC1815(Y)		"	"
Q531	2SC1815(Y)		"	"
Q532	2SC1815(Y)		"	"
Q533	2SA1015(Y)		"	"
Q534	2SA1015(Y)		"	"
Q701	2SC2240 (GR,BL)		"	"
Q702	2SC2240(GR,BL)		"	"
Q703	2SA970(GR,BL)		"	"
Q751	2SD1265A(O,P)		"	Matsushita
Q752	2SA1015(Y, GR)		..	Toshiba

Diodes

Item No.	Part Number	Rating	Description	Maker
D511	RD2.7EB2		Silicon (Zener)	NEC
D512	RD2.7EB2		"(")	"
D515	1S2076-31		Silicon	Hitachi
D516	1S2076-31		"	"
D517	1S2076-31		"	"
D518	1S2076-31		"	"
D519	1S2076-31		"	"
D520	1S2076-31		"	"
D521	1SS81		"	"
D522	1SS81		"	"
D523	1SS81		"	"
D524	1SS81		"	"
D525	1S2076-31		"	"
D526	1S2076-31		"	"
D527	1S2076-31		"	"
D528	1S2076-31		"	"
D529	1S2076-31		"	"
D530	1S2076-31		"	"
D701	1S2076-31		"	"
D702	1S2076-31		"	"
D704	1S2076-31		"	"
D751	S3V20F		"	Sinden-gen
D752	S3V20F		"	"
D753	S3V20F		"	"
D754	S3V20F		"	"
D755	S2VC20R		"	"
D757	RD2.7EB2		"(")	NEC
D758	RD10EB3		"(")	"
D759	RD5.6EB3		"(")	"

Coils

Item No.	Part Number	Rating	Description
L701	EQL0003-1R0		Choke Coil
L702	EQL0003-1R0		Choke Coil

Integrated Circuits

Item No.	Part Number	Rating	Description	Maker
IC501	VC5022-2		I.C.	Sanyo
IC502	VC5022-2		"	"
IC701	TA7317P		"	Toshiba

Diodes

Item No.	Part Number	Rating	Description	Maker
D501	1S2076-31		Silicon	Hitachi
D502	1S2076-31		"	"
D503	1S2076-31		"	"
D504	1S2076-31		"	"
D505	1S2076-31		"	"
D506	1S207631		"	"
D507	1S2076-31		"	"
D508	1S2076-31		"	"
D509	RD2.7EB2		" (Zener)	NEC
D510	RD2.7EB2		" (")	"

Capacitors

Item No.	Part Number	Rating		Description
C503	QFP31HJ-472	4700pF	50V	Polypropylene
C504	QFP31HJ-472	"	"	"
C505	QFS82BJ-680	68pF		Polystyrene
C506	QFS82BJ-680	"		"
C507	QFS82BJ-330	33pF		"
C508	QFS82BJ-330	"		"
C509	QFM81HJ-123	0.012μF	50V	Mylar
C510	QFM81HJ-123	"	"	"
C511	QFM81HJ-104	0.1μF	"	"
C512	QFM81HJ-104	"	"	"
C513	QFM81HJ-102	1000pF	"	"
C514	QFM81HJ-102	"	"	"
C515	QFM81HJ-102	"	"	"
C516	QFM81HJ-102	"	"	"
C703	QET51HR-226H	22μF	"	Electrolytic
C704	QET51CR-226H	"	16V	"
C705	QET51HR-474H	0.47μF	50V	"
C706	QFM81HJ-153	0.015μF	"	Mylar
C707	QET51AR-476H	0.47μF	10V	Electrolytic
C708	QET51AR-476H	"	"	"

8. Packing Materials and Part Numbers

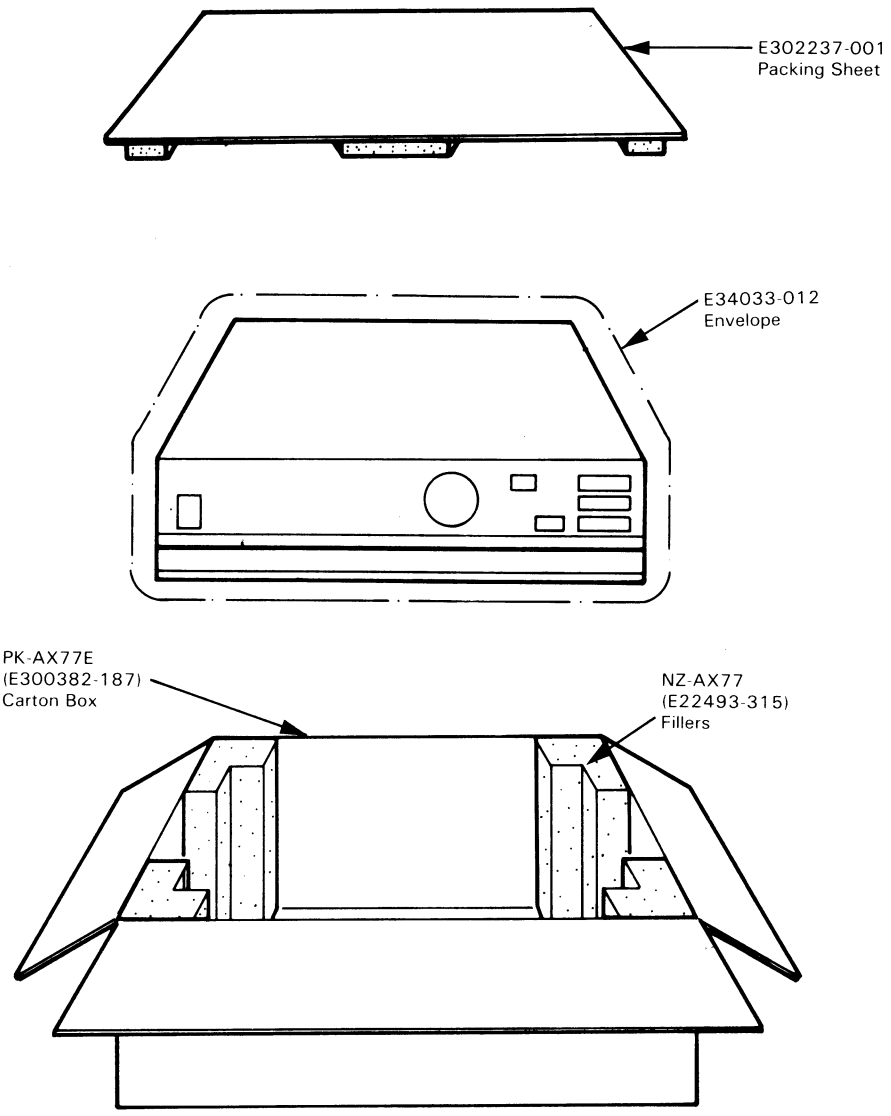


Fig. 15

9. Accessories List

Note: Instruction Book (Dutch & Spanish) for Europe and Other Countries E30580-1036A

Item No.	Part Number	Description	Q'ty
1	E30580-981A	Instruction Book	1
2	See page 22	Warranty Card	1
3	QMF51A2-6R3S or QMF51A2-3R15S	Fuse Primary (for U.S. Military Market and Other Countries)	1
4	E67142-T6R3 (6.3A) or E67142-T3R15 (3.15A)	Fuse Label (for U.S. Military Market and Other Countries)	1
5	BT20046A	Service Information Card (for U.S.A. and U.S. Military Market)	1
6	BT20044B	Safety Instruction Sheet (for U.S.A. only)	1
7	E41202-2	Envelope for Instruction Book and Warranty Card	1
8	E64208-001	Envelope for Fuse (for U.S. Military Market and Other Countries)	1

Thermisters

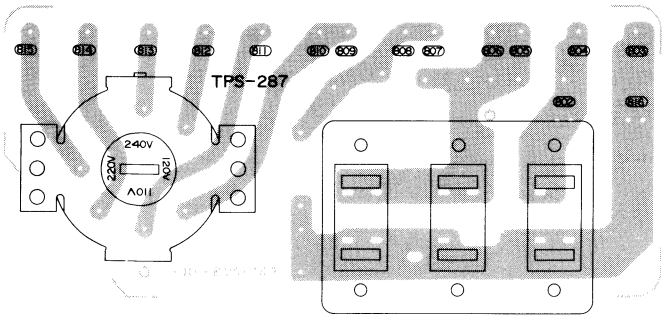
Item No.	Part Number	Rating	Description	
				Maker
R515	ERT-D2WFL351S			Matsushita
R516	ERT-D2WFL351S			"
R557	ERT-D2WFL351S			"
R558	ERT-D2WFL351S			"
R559	ERT-D2WFL351S			"
R560	ERT-D2WFL351S			"

Others

Item No.	Part Number	Rating	Description
	E10696-001		Circuit Board
	E67294-003		Leaf Spring
	E302102-001		Heat-sink bracket
	E302102-002		Heat-sink bracket
	LPSP3012N		Screw
	SBSB3008CC		Screw (Coppered)
	SBSE3012CC		Screw (")
	E300209-009		Heat-sink
J501	E04365-007		Formed wire socket
J702	EMB00TP-801A		Speaker Terminal
P501	E03628-5UD		5 Pin Plug
P701	QMV5005-006		6P Plug Assy
P702	QMV5005-002		2P Plug Assy
S701	QSS6401-501		Slide Switch
RY701	ESK5D24-214		Relay

7-(4) TPS-287C AC Unit P.C. Board Ass'y

[for U.S.A. and Canada]

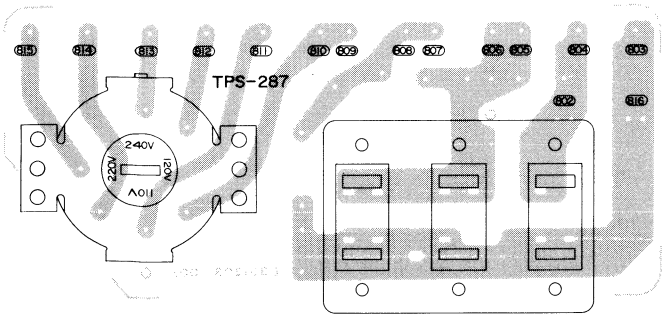


Item No.	Part Number	Rating	Description
C001	QCZ9014-103A	0.01 μF	Ceramic Capacitor ⚠
	QMC0637-004		AC Outlet ⚠
	QSR0085-001		Voltage Selector ⚠
	E301203-003		Circuit Board

Fig. 12

7-(5) TPS-287D AC Unit P.C. Board Ass'y

[for U.S. Military Market and Other Countries]

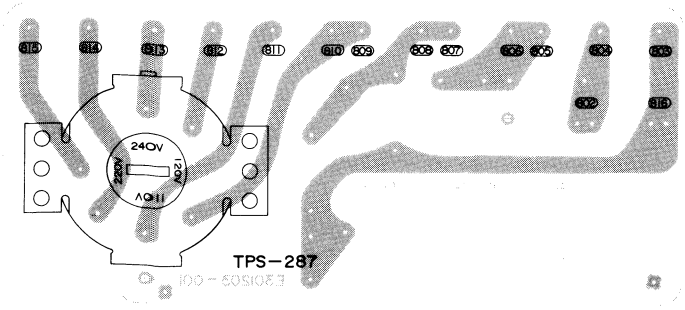


Item No.	Part Number	Rating	Description
C001	QFZ9010-103	0.01μF	Metalized Mylar Capacitor ⚠
	QMC0637-004		AC Outlet ⚠
	QSR0085-001U		Voltage Selector ⚠
	E301203-003		Circuit Board

Fig. 13

7-(6) TPS-287E AC Unit P.C. Board Ass'y

[for Europe, Australia, U.K. and West Germany]



Item No.	Part Number	Rating	Description
C001	QFZ9010-103	0.01μF	Metalized Mylar Capacitor ⚠
	QSR0085-001U		Voltage Selector ⚠
	E47448-001		Holder
	E301203-001		Circuit Board

⚠ : Safety Parts

Fig. 14

10. A-X77 Schematic Diagram

Notes:

1. Voltage values in ▭ are measured with a tester (impedance 20kΩ/V).
2. —— indicates positive B power supply.
3. —— indicates negative B power supply.
4. ▒▒ indicates signal path.
5. When replacing the parts in the darkened are (▒▒) and those marked with ⚠ , be sure to use the designated parts to ensure safety.
6. Parts in red indicate transistors or ICs.
7. This is the standard circuit diagram. The design and contents are subject to notice.

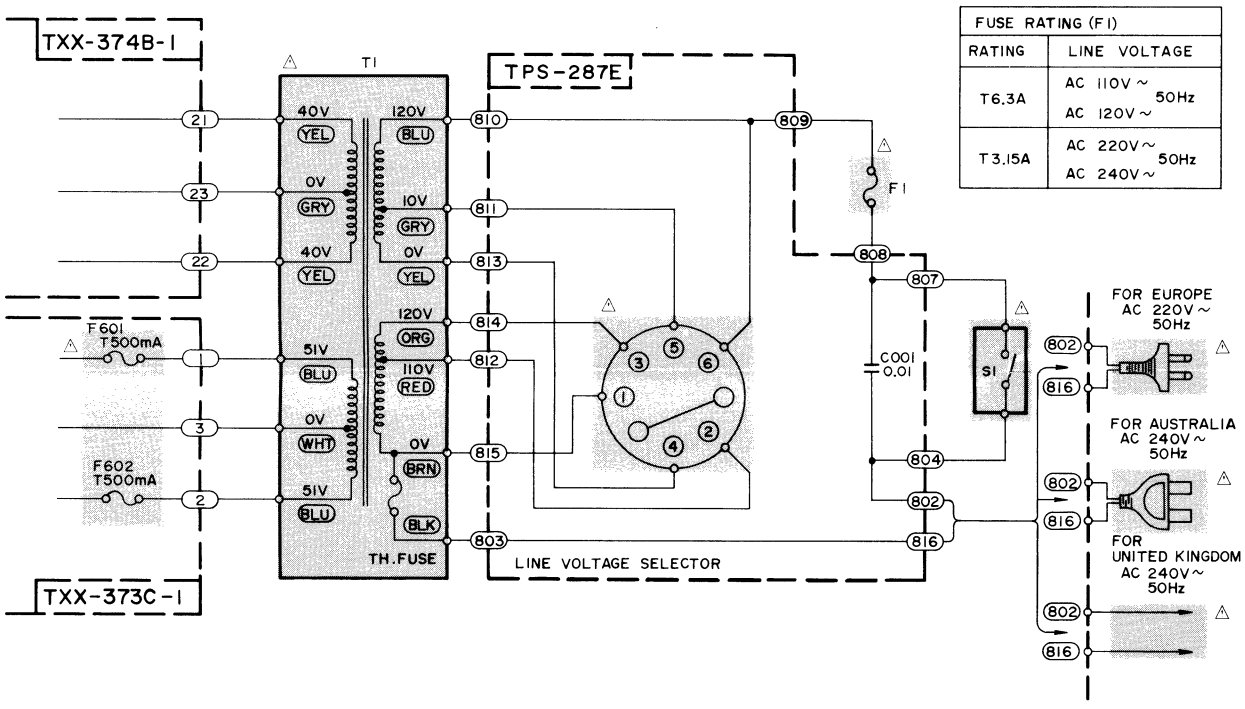
Printed Circuit Board Ass'y Location

P.C. Board Ass'y	Description	Page
TXX-372	Equalizer Amp. P.C. Board Ass'y	9
TXX-373	Drive Amp. P.C. Board Ass'y	12
TXX-374	Power Amp. P.C. Board Ass'y	15
TPS-287C	AC Unit P.C. Board Ass'y	18
TPS-287D	"	18
TPS-287E	"	18

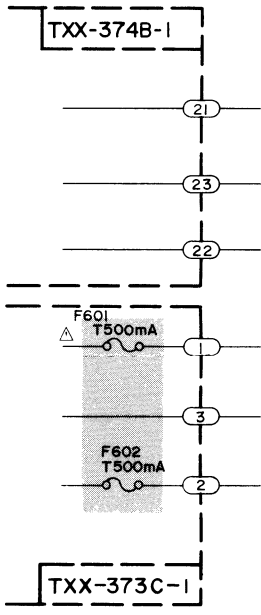
ate transistors or ICs.
ard circuit diagram.
contents are subject to change without

11. Power Supply Block for Designated Areas

(E),(A),(BS) (E) FOR EUROPE : ~220V, 50Hz
(A) FOR AUSTRALIA : ~240V, 50Hz
(BS) FOR U.K : ~240V, 50Hz

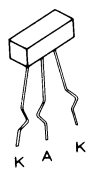


(U),(P)

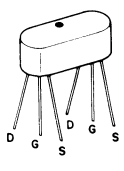


D751~754
S3V20F

D601~604
10DF2FD



D755
S2VC20R



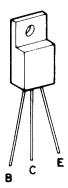
Q101, 102
2SK146

D653~658, 661
SLP-270C

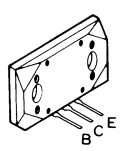
D101~108, 301~310, 313~316, 501~508, 515~520, 525~528, 652, 701, 704
IS2076-31
D521, 522
ISS81
D313, 314, 509~512, 757, 659, 660
RD2.7EB2
D651, 609, 759
RD5.6EB3
D311, 312
RD6.2EB3
D202, 203, 758
RD10EB3
D201
RD11EB3
D109~116
RD20EB3

Q601, 602
2SK246 (GR)
Q107, 108
2SK163 (L1)
Q501, 502
2SK170 (BL,V)

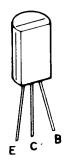
Q519, 520
2SD669A (B,C)
Q521, 522
2SB649A (B,C)



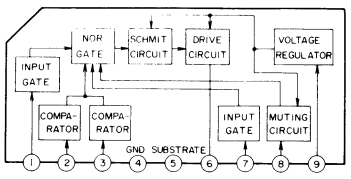
Q604
2SB507 (D,E)
Q603
2SD313V (D,E)
Q751
2SD1265A (O,P)



Q523, 524
2SC2921LF (O,Y)
Q525, 526
2SA1215LF (O,Y)

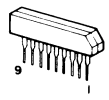


Q107, 108, 111, 112, 503, 504, 517, 518, 606, 703
2SA970 (GR,BL)
Q103~106, 109~112, 515, 516, 701, 702, 605
2SC2240 (GR,BL)
Q109, 110, 117, 118, 125, 126, 303~308, 509~512, 529~532, 652~654
2SC1815 (Y,GR)
Q513, 514, 527, 528, 533, 534, 752
2SA1015 (Y,GR)
Q309~312
2SC458 (C,D)
Q323, 324, 505~508
2SC2910 (S,T)
Q113, 114
2SA872AV (E,F)
Q119, 120, 313, 314
2SC2546 (E)
Q121, 122
2SA1084 (E)
Q319~322
2SA1208 (S,T)

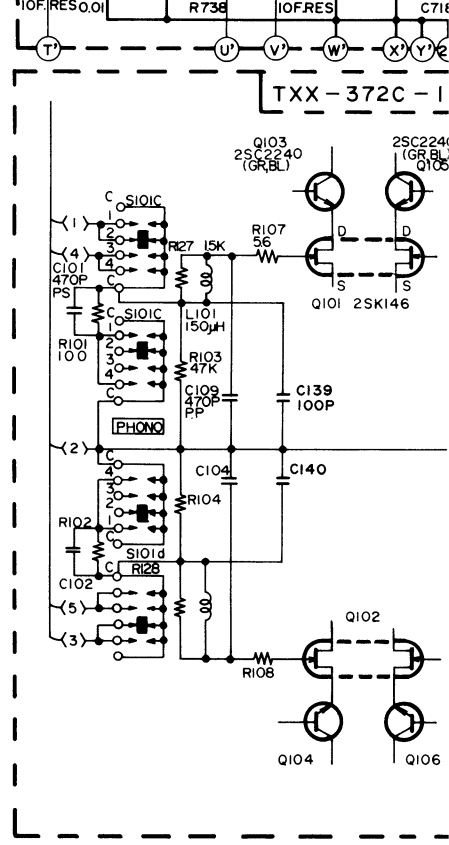


TA7317P

Q301, 302
2SK150A (GR,BL)

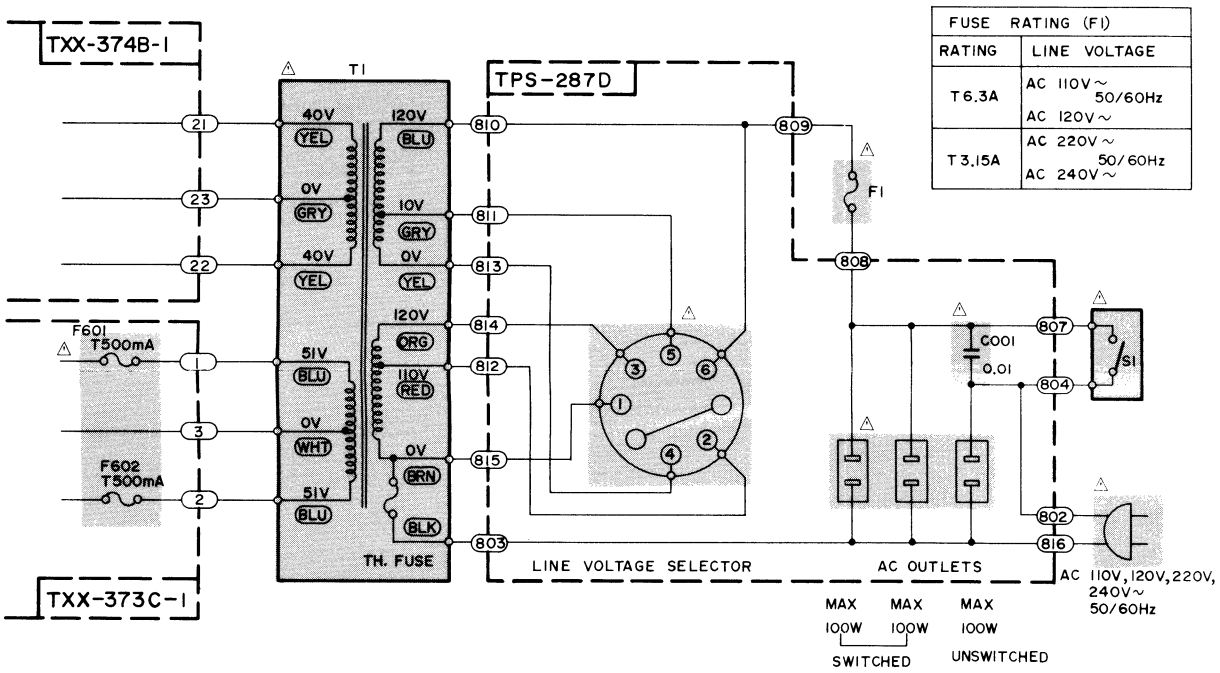


IC701
TA7317P
IC501, 502
VC5022-2



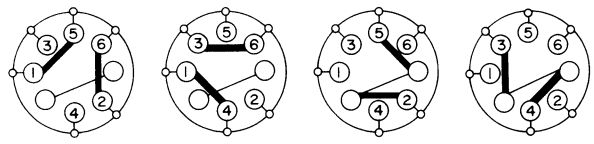
(U),(P)

(U) FOR OTHER COUNTRIES
(P) FOR U.S. MILITARY MARKET

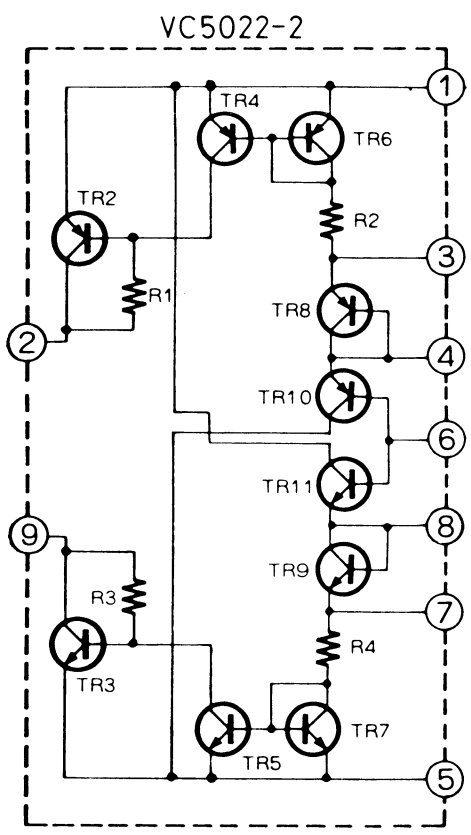


FUSE RATING (F1)	
RATING	LINE VOLTAGE
T6.3A	AC 110V~ 50/60Hz AC 120V~
T3.15A	AC 220V~ 50/60Hz AC 240V~

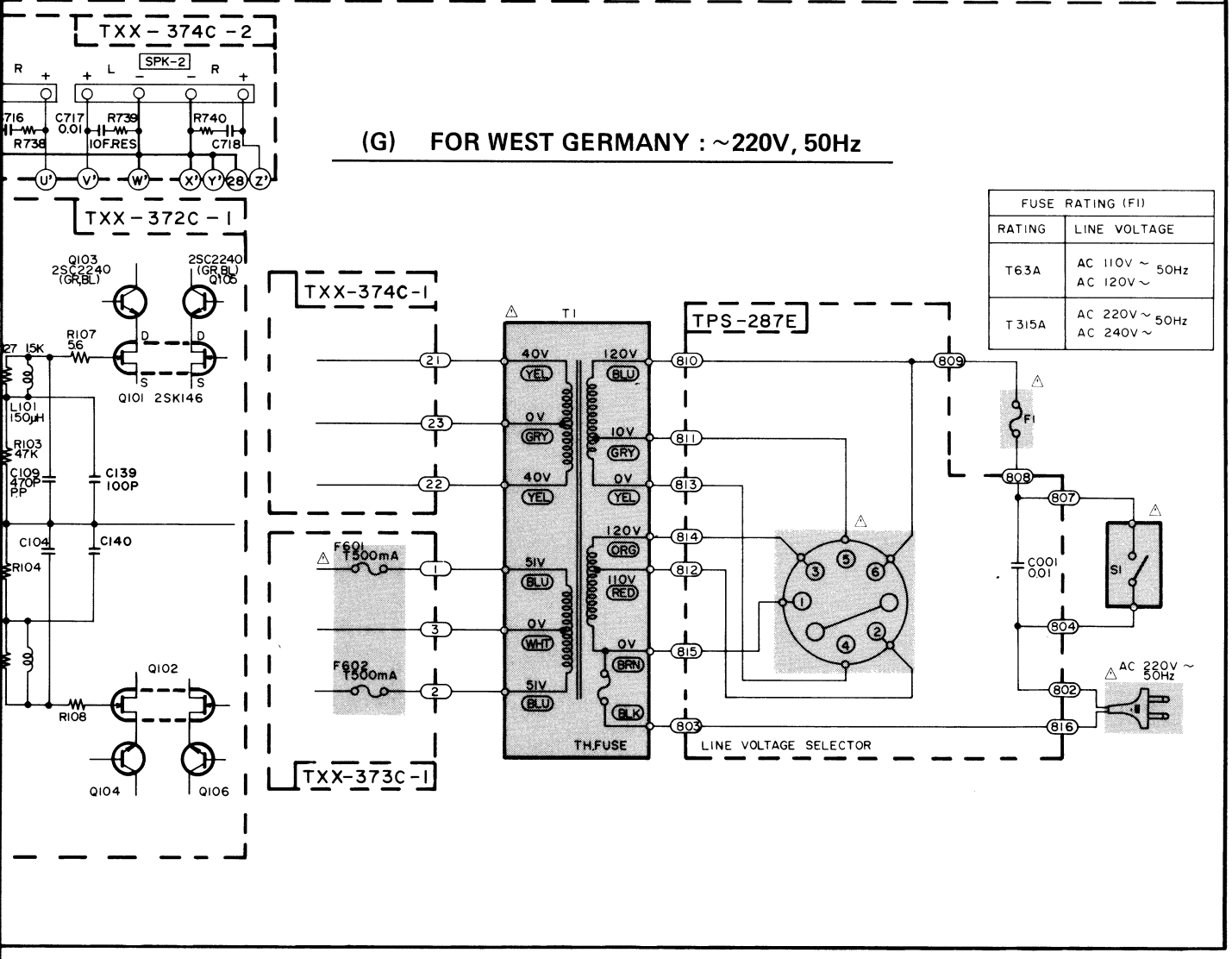
VOLTAGE SELECTOR CONNECTION



TOP VIEW



(G) FOR WEST GERMANY : ~220V, 50Hz



FUSE RATING (F1)	
RATING	LINE VOLTAGE
T63A	AC 110V ~ 50Hz AC 120V ~
T315A	AC 220V ~ 50Hz AC 240V ~

12. Parts List with Specified Number for Designated Areas

Item No.	Description	U.S.A. & Canada	Europe & West Germany	Australia	U.K.	U.S. Military Market & Other Countries
1	Power Switch ⚠	QSP1110-310	QSP1106-002	QSP1106-002	QSP1106-002	QSP1106-002
2	Switch Cover ⚠	–	E67520-002	E67520-002	E67520-002	E67520-002
3	AC Cover ⚠	–	E302104-001	E302104-001	E302104-001	–
4	Power Cord ⚠	QMP1200-200	QMP3900-200	QMP2560-244	QMP9017-008	QMP1200-200
5	Siemens Plug ⚠	–	–	–	–	E04056
6	Fuse Socket ⚠	QMG0201-003	QMG0301-003	QMG0301-003	QMG0301-003	QMG0301-003
7	Fuse Primary ⚠ (F001)	QMF61U1-6R0 (6A 120V)	QMF51A2-3R15S (3.15A 220V/240V)	QMF51A2-3R15S (3.15A 220V/240V)	QMF51A2-3R15S (3.15A 220V/240V)	QMF51A2-6R3S (6.3A 110/120V) QMF51A2-3R15S (3.15A 220V/240V)
8	Fuse Secondary ⚠ (F601, 602)	QMF51U2-R50 (0.5A)	QMF51A2-R50L (0.5A)	QMF51A2-R50L (0.5A)	QMF51A2-R50L (0.5A)	QMF51A2-R50L (0.5A)
9	Fuse Cover ⚠	–	E69291-001	E69291-001	E69291-001	–
10	Rear Panel ⚠	E24085-003	E24085-004	E24085-004	E24085-004	E24085-005
11	Rating Plate	E66860-018	E66860-025	E66860-025	E66860-025	E66860-019
12	Voltage Selector ⚠	QSR0085-001	QSR0085-001U	QSR0085-001U	QSR0085-001U	QSR0085-001U
13	Mask Plate for Voltage Selector	E67451-001	–	–	–	–
14	AC Outlet ⚠	QMC0637-004	–	–	–	QMC0637-004
15	Mask Plate for AC Outlet	–	E65494-003	E65494-003	E65494-003	–
16	Warranty Card	BT20048 (for U.S.A.) BT20025E (for Canada)	BT20054-002A (for W.Germany Only)	BT20029B	BT20013C	BT20048 (for U.S.Military Only)

Note : ⚠ Safety parts

POWER SPECIFICATIONS

Areas	Line Voltage & Frequency	Power Consumption
U.S.A. & CANADA	AC 120 V, 60 Hz	450 watts, 600 VA
EUROPE, W. GERMANY U.K. & AUSTRALIA	AC 110/120/220/240 V∿ Selectable, 50 Hz	545 watts
OTHER AREAS	AC 110/120/220/240 V∿ Selectable, 50/60 Hz	545 watts